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Development of a Small Business Data Base

BY NORMAN FRUMKIN

Office of Federal Statistical Policy and Standards
U.S. Department of Commerce

Introduction

With the growing awareness that inflation, recession, credit, taxes and regulations affect small and larger size businesses differently, a Government-wide effort began in November 1979 on the development of a small business data base. The project was initiated by President Carter, who directed all executive departments and agencies to work with the Small Business Administration in developing the data base. The data base will provide industry profiles by size of firm for analyzing trends in the relationship and sensitivity of small business to the rest of the economy. This is broader than "small business," because it is aimed at developing such data as sales, employment, payrolls, profits and capital expenditures on a consistent set of size categories for an array of small, medium and large size businesses. The analyses will be used for shaping and evaluating policies and programs to enhance the health of the small business sector.

The work is conducted by two interagency committees, one for policy and the other for technical issues. The committees are chaired by the Small Business Administration, and the Office of Federal Statistical Policy and Standards is the Executive Secretariat.

This article is adapted from the First Report of the Technical Committee on Small Business Statistics. The report was approved by the Policy Committee in June 1980. It highlights the results of the first phase of the data base development, which culminated with a major recommendation for the adoption of common size of business categories to be followed by statistical agencies in their future tabulations of business size data. Work is underway on formulating the size categories into a Government-wide standard of the Office of Federal Statistical Policy and Standards. Several issues have been identified for improving the analytic usefulness of business size data in the next phase of the data base development.

Goals of the Data Base Development

The small business data base is intended for use in both short-term and long-term analyses. For example, timely monthly and quarterly information on payrolls, employment and profits by size of firm would be used to assess the short-term impacts of the business cycle on various size categories of business, eventually including the effect of macroeconomic fiscal and monetary policies on different size businesses. The more detailed industry and geographic annual and quinquennial data on sales, employment, payrolls, depreciation, profits and capital expenditures would be used for analyzing underlying structural trends affecting the size spectrum of businesses, such as the long-term effects of tax laws and the changing export base of State economies.

In our decentralized statistical system, data by size of business are compiled by a number of Federal agencies: Bureau of the Census, Bureau of Labor Statistics, Internal Revenue Service, Federal Trade Commission, and Department of Agriculture. Depending on the particular data series, the size categories are defined by the number of employees and the dollar value of sales and assets. Because the reporting instruments and methodology used to collect and tabulate the data differ widely among the agencies, the statistical series on sales, employment, payrolls, profits, etc., by size of business which are provided by the various agencies are not comparable.

A major goal of the small business data base is to make the business size data series provided by the different agencies more compatible. In the process of adopting a size classification scheme to be used on a Government-wide basis, special attention was given to

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Comments and inquiries concerning the small business data base may be directed to Norman Frumkin, Office of Federal Statistical Policy and Standards, U.S. Department of Commerce, Washington, D.C. 20230.

balancing the considerations of which classifications are most relevent for analysis and policymaking, easy to understand, and do not diverge in a major way from existing size categories. Also, while the interest of the Small Business Administration is in businesses at the lower end of the size spectrum, it is necessary to trace developments in firms of a wide range of size categories in order to understand better the relationship of "small business" to the rest of the economy.

Looking ahead to how users will have access to the data base, in the first instance various data series will continue to be available from the source agencies. Plans for a comprehensive compilation of the data base that would make it available in one convenient place will be developed later.

The emphasis in developing the data base is on making maximum use of existing information obtained in Government reporting systems without imposing additional reporting burden on the public. As noted above, the initial work centered on recommending common definitions on size of business classifications to be followed by Government agencies when tabulating data by business size. The future work on additional data collection, processing, and tabulation needs is summarized in the section on topics for further study.

Establishment of Common Size Classes

The need for common size classes of business firms is crucial for developing a comprehensive Government-wide data base in which data from many statistical agencies can be integrated. Inconsistencies in size categories result in continuing limitations to all users of data by business size. This effort is the first Government-wide attempt to resolve these problems.

In developing standards for statistics by employment, assets and sales, the focus is on numerical criteria only without designating descriptive terminology such as "small," "medium" or "large." Such nomenclature is a qualitative assessment which may vary with the use of the data, and is best left to users to apply as they see fit. These standards are for use in broad statistical research and analysis. They are independent of size standards used by the Small Business Administration in determining which businesses are eligible for loans under its assistance program.

It is also clear that the tabulation of data by consistent size categories does not resolve the problem of noncomparability among Government survey and administrative record reports for multi-unit companies because the data from the different sources are reported at varying levels of company organization. For example, Bureau of Census data are reported for the "establishment" geographic operating unit and the enterprise domestic consolidated "company" level; Bureau of Labor Statistics data by the county unit in the company filing unemployment insurance taxes; Internal Revenue Service data by the income tax paying unit (varies by company on the degree of domestic and international consolidation); and Federal Trade Commission data by the consolidated company domestic operations of corporations including its majority owned subsidiaries.

The adoption of common size categories is a first step in developing comparable business size data in Government statistical series. In presenting the data, it will be necessary for agencies to describe the level of the company from which the information is obtained so that users understand what the data represent. While business size data from different agencies are not comparable because of variations in the reporting unit within the company, the availability of size data in consistent categories accompanied by a description of the data source would permit analyses to be made of the effect of the varying reporting units in the size distribution data.

RATIONALE FOR SELECTING SIZE CATEGORIES *

The task of selecting standard business size categories must balance four objectives. The primary objective is to obtain consistency across agencies in the tabulation of business data. The next two objectives are to design stability over time and to minimize disruption or devaluation of existing series. The last objective is to make the scheme as simple as possible within the other constraints.

To avoid arbitrary choices, both existing practices and the mathematical structure and internal logic of various schemes were examined to enhance their usefulness for analyses and policymaking.

To achieve stability a scheme must anticipate and accommodate likely changes in order to minimize pressures for frequent revisions. Since the measure of size being considered includes dollar variables as well as employment, the effect of inflation should be anticipated. Inflation will produce significant shifts on dollar scales, independent of other factors, which

* This section was developed by Jerry Coffey of the Office of Federal Statistical Policy and Standards.

argues for a consistent logic across the full range of dollar sizes.

To minimize disruption of existing series, current and historical practices must be recognized. Three common themes can be identified in agency practices. First, there is a preference for approximately logarithmic scales (wider intervals for larger sizes).[1] Second, there is a preference for use of powers of 10 as break points (e.g., 10, 100, 1,000, . . . 10^n). Finally, with some significant exceptions, each power of 10 is split by two additional break points that are usually approximately constant percentage increases (i.e., logarithmic). Thus the upper limit of preferred intervals is often about 2 to 2.5 times the lower limit. Most of the exceptions occur at the lower or upper ends of the size range of interest to an agency and can often be viewed as a collapsing of the mid-range pattern. Break points of the form 10^n and $5x10^n$ (5, 10, 50, 100, etc.) are very common. Also common are breaks of the form $2x10^n$ *or* $2.5x10^n$ (20, 200, 250, 2,000, 2,500, etc.). However, the choice of this third break is not only inconsistent across agencies but varies from one tabulation to another within an agency and even varies at different size levels in a single tabulation. While agency practice provides no clear guide for a choice between $2x10^n$ and $2.5x10^n$, either choice would yield a simple size classification scheme.

Only a pure logarithmic scheme (e.g., 2, 4, 8, 16, . . . 2^n) is mathematically simpler.[2] But since no agency uses such a scheme for a major series, this alternative was eliminated.

Consequently, two schemes met the objectives to about the same degree. In the interest of simplicity, the Technical Committee recommended a single scheme for both employment and dollar variables and opted for uniform size breaks at $2.5x10^n$, $5x10^n$ and 10^n with provision for collapsing or expanding the detail on minor issues of analytical convenience and the significance of the 250 based employee level in controlling respondent burden. (The Office of Management and Budget has agreed to give special weight to the recommended size breaks in choosing a trigger level for controlling small business respondent burden).

One exception was made to this basic structure. In contrast to the general inconsistencies, the use of a 20-employee break is nearly universal. Since there is no definitive model of employment size distributions and growth, the stability question (consistency across the range of sizes) is less important for employment than for dollar measures. The only sacrifice is simplicity which is a lower priority objective. Finally, since the dollar values of interest are much higher than this level, the recommended break points at 50 and above still form a simple, consistent (approximately) logarithmic scale.

RECOMMENDED BUSINESS SIZE STANDARDS

1. The Small Business Statistics Policy Committee endorsed the standardization objectives and principles discussed above and the size categories presented in Table 1 for the future development of business size data. This includes a flexible implementation method to be compatible with confidentiality provisions, existing sizes of sample surveys, reporting burden, and budget restraints of the Federal Government agencies providing the data.

2. As part of the process of adopting the recommended principles and size categories in (1) above, the Office of Federal Statistical Policy and Standards is drafting a Government-wide statistical standard for future tabulations of business size data. The standard will include adequate provision for collapsing or expanding the categories within the structure to suit individual agency needs. Such revisions or refinements as may be appropriate will be developed following an opportunity for full agency and public comment through announcements of the proposed standard in the *Statistical Reporter* and *Federal Register*.

3. In order to expedite the availability of size of business data in the proposed size categories, the Office of Federal Statistical Policy and Standards requested Federal agencies that provide statistics impacted by the proposed standard to include resources in their Fiscal Year 1982 budget requests to plan for the implementation of the proposed standard through an orderly transition. In addition, agencies that use business size data and would need retabulations of historical data based on the proposed size classifications were requested to include funding in their FY 1982 budget planning for these data to be supplied on a reimbursable basis by the source agencies.

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[1] If the width of each interval increases by a constant factor over the width of the preceding interval then the *logarithms* of the interval widths (and the break points) are linear, hence the term "logarithmic."

[2] A pure logarithmic scale has the advantage of reflecting percentage changes (e.g., uniform inflation of dollar values) as simple shifts which do not alter distribution shapes. Approximately logarithmic scales share this characteristic to some extent. This inherent characteristic of the scale can reduce the need for deflator analyses since simple shifts due to the general inflation effect can be more easily distinguished from complex changes.

TABLE 1. PROPOSED TABULATION STANDARDS

Employment (Number of employees)	*Sales/Assets* (Dollars)
0	0 - 24,999
1 - 4	25,000 - 49,999
5 - 9	50,000 - 99,999
10 - 19	100,000 - 249,999
20 - 49	250,000 - 499,999
50 - 99	500,000 - 999,999
100 - 249	1 million - 2.49 million
250 - 499	2.5 million - 4.99 million
500 - 999	5.0 million - 9.99 million
1,000 - 2,499	10.0 million - 24.99 million
2,500 - 4,999	25.0 million - 49.99 million
5,000 - 9,999	50.0 million - 99.99 million
10,000 +	100.0 million - 249.99 million
	250.0 million - 499.99 million
	500.0 million - 999.99 million
	1 billion - 2.49 billion
	2.5 billion - 4.99 billion
	5 billion +

Topics For Further Study

In addition to the proposed business size classifications, the Technical Committee examined a number of other issues involved in the development of a small business data base. These were studied over a 7-month period, which for 2 months included weekly meetings of subcommittees. Although this involved considerable effort, the Committee felt that because of the complexity of the issues, further analysis was necessary in order to make feasible recommendations.

As a result of this work, the next phase of the data base development will address operational means of resolving problems in the areas itemized below. This will also identify additional reporting burden and funding required for their implementation. The topics to be studied include means of dealing with data reported at different levels of company organization in various Government survey and administrative record reports; clarifying the reporting of data for firms with no paid employees; techniques for matching sample and universe data for parent companies and establishments within the company; bridging the employee and dollar size categories; collecting and tabulating additional information, including expanding samples of reporting firms, new item content, and longitudinal data that follow the development of the same group of firms or clusters of similar firms over time; retabulation of historical data for selected series based on the new size classifications; developing methods for analytical reconstruction of series where simple retabulation is not possible; and access to the data base by users. The data base work will also be shaped by the Small Business Economic Policy Act of 1980 (Public Law 96-302), which calls for the President to report to Congress by January 20 of every year on issues affecting small business and competition, and for the Administrator of the Small Business Administration to publish small business economic indices and an annual report on economic trends in the small business sector.

Priorities for working on these longer-term topics will be developed by the Technical Committee. In developing the priorities, one of the issues looked at will be the balancing of data needs for national aggregates with size distributions. The work agenda in this next phase will also include a procedure for obtaining public views on the data base development.

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Richard Stevens
Minority Business Development Agency
Department of Commerce

Howie Wilson
Internal Revenue Service
Department of the Treasury
Alternates:
John DiPaolo
Joel Stubbs

Documents Relating to the Metropolitan Statistical Area Classification for the 1980's

Prepared By
THE FEDERAL COMMITTEE ON STANDARD
METROPOLITAN STATISTICAL AREAS

Background and Rationale for the Official Standards

This statement provides background information on the metropolitan area concept and the development of the official standards for defining metropolitan statistical areas for Federal statistical purposes. It discusses each section of the new standards and points out how the new provisions differ from those previously in effect.

The General Concept of a Metropolitan Area

Interest in developing a consistent definition of metropolitan areas in the United States dates back more than a century. The concept of a metropolitan area arose from the common observation that the physical extent of a large urban concentration often overflows the official limits of any single city. The existence of suburban areas outside the limits of important cities was noted in statistical publications well before the Civil War.[1]

Metropolitan areas were first officially defined for census purposes in 1910 as "metropolitan districts," a term which continued in use until the 1940's. These definitions were established primarily to permit accurate comparisons of important urban centers across the country, unaffected by the varying extent of central city boundaries.[2]

From a review of the official metropolitan districts of the 1910-40 period, it is clear that the general concept that underlay their definition was that of a single concentration (sometimes with multiple centers) of dense urban development, larger than a stated size, with strong internal commuting ties and weak ties to any other densely developed areas. This general con-

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Editor's Note: Readers of *Statistical Reporter* will recall that the December 1979 issue contained the final standards for establishing metropolitan statistical areas following the 1980 census. That issue also included a nontechnical summary of the standards, lists of potentially affected counties, and information on general procedures and definitions.

This issue contains additional documents relating to the 1980 standards. These include a background and rationale statement, the sources of data used in conjunction with the standards, the procedural steps followed in applying the standards, lists of potential consolidated and primary metropolitan statistical areas, and a list of potential changes in New England.

These materials are published here in response to the general interest in the metropolitan statistical area standards, both in and outside the Federal Government. For further discussion of the new standards, readers are referred to Joseph W. Duncan, "Metropolitan Areas for the 1980s," *American Demographics*, July/August 1979, Vol. 1, No. 7. Another article on metropolitan areas by Mr. Duncan will appear in *American Demographics* in early 1981. The impact of the new standards for metropolitan statistical areas on the private and public sectors will be the subject of a panel discussion at the 1980 annual meetings of the American Statistical Association in Houston, August 11-14.

[1] For example, in 1846 the *New England Gazetteer's* entry on Boston stated: "Owing to the almost insular situation of Boston, and its limited extent, its population appears small. But it must be considered that the neighboring towns of Quincy, Dorchester, Milton, Roxbury, Brookline, Brighton, Watertown, Cambridge, Charlestown, Medford, Malden, and Chelsea, although not included in the city charter, are component parts of the city, and are as much associated with it in all its commercial, manufacturing, literary, and social relations and feelings, as Greenwich, Manhattanville, and Harlem are with the city of New York; or Southwark and the Northern Liberties with Philadelphia." (John Hayward, *The New England Gazetteer*, 48th edition; Boston: John Hayward, 1846).

[2] The 1910 census noted: "In its general tables dealing with the population of cities, the Bureau of the Census must necessarily deal with political units, or, in other words, with the population contained within the municipal boundaries of each city. It is a familiar fact that, in some cases, the municipal boundaries give only an inadequate idea of the population grouped around one urban center, and as regards the large cities in very few cases do these boundaries exactly define the urban area. In the case of many cities there are suburban districts with a dense population outside the city limits, which, from many standpoints, are as truly a part of the city as the districts which are under the municipal government. These suburbs are bound to the cities by a network of transportation lines. Many of the residents in the suburbs have their business or employment in the city, and, to a certain extent, persons who reside in the city are employed in the suburbs." (U.S. Bureau of Census, *Thirteenth Census of the United States, 1910*, Vol. I, p. 73; Washington: Government Printing Office, 1911).

cept has continued to underlie the various official Federal definitions of metropolitan areas down to the present time.[3]

Sometimes the metropolitan area concept is confused with other types of areas which are also defined in terms of a central urban concentration but embody a different concept. Examples include trading areas, marketing areas, and various types of areas defined for media analysis. The relationship of such areas to metropolitan areas is discussed in Appendix 1-A.

The metropolitan area as a concept should also be distinguished from the urbanized area. As defined by the Bureau of the Census, the urbanized area consists of the physically continuous built-up area around each large city. It therefore includes the high- and medium-density urban development at the core of the metropolitan area, but not the scattered suburban and semi-rural areas on its periphery. For further discussion on the relationship between metropolitan areas and urbanized areas, see Appendix 1-B.

Determining Metropolitan Boundaries

In applying this general metropolitan area concept to the definition of a specific metropolitan area, there are two main problems, both of which relate to determining the extent of the area. It is generally easy to recognize that a separate metropolitan area exists, because of the high density that sets the typical urban concentration apart from its surroundings. However, defining the limits of the area is much more difficult. In medieval times, the limits of an urban center were often evident because the transition from city to country was abrupt, with only a fortified city wall separating crowded streets from open land. For modern cities, however, the transition from the high-density urban core to rural territory is much more gradual. A typical American metropolitan area comprises a high-density inner core made up of the central city and older suburbs, post-1945 suburban development with a moderate density, scattered outlying subdivisions interspersed with rural land, and even farm and other rural territory from which many commuters travel daily to the city or its immediate suburbs. The high-density core area remains physically distinctive, but the outlying suburbs shade off gradually into rural territory. Consequently, where to draw the boundaries of the metropolitan area has become much less obvious.

A second problem arises when two important urban centers are located in close proximity to each other. As the urban area spreads out, it often comes into contact with development extending outward from another urban area, so that the two suburban areas may begin to merge with each other. In such cases, it may not be evident whether there are two separate metropolitan areas, or just one metropolitan area with two centers.

The metropolitan concept discussed above indicates general answers to these two problems of determining boundaries. Following the concept, outlying areas with high commuting to a metropolitan core belong to that metropolitan area because of their strong commuting ties, provided they exhibit some degree of dense urban development. Likewise, urban concentrations close together should be regarded as a single metropolitan area if they have become part of a continuum of dense urban development, or if they are linked by strong commuting ties. However, before the concept can be applied to the actual definition of specific areas, such terms as "dense urban development" and "strong commuting ties" must be expressed as specific statistical values.

A primary function of the official standards for metropolitan statistical areas is to establish such values. In practice, each value has usually been determined after comparing its effects on actual area definitions with the effects of using higher or lower alternatives. The value adopted is the one that appears to produce the most reasonable set of definitions nationwide, consistent with the general metropolitan area concept.

Development of the Official Criteria

The boundaries of the metropolitan districts in 1910 were determined primarily on the basis of population density. While the significance of commuting in determining the extent of a metropolitan area was recognized, no comprehensive data on commuting flows were available at that time. The available

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[3]See Richard L. Forstall and Philip N. Fulton, "The Official SCSA/SMSA Definition: Concept and Practice," *Statistical Reporter*, October 1976, and the sources cited there, in particular Warren S. Thompson, *The Growth of Metropolitan Districts in the United States: 1900-1940* (Washington: Government Printing Office, 1948). Even before 1910, a similar concept was present in the identification and definition of "industrial districts" for the census of manufactures of 1905 (Bureau of the Census, *Industrial Districts: 1905*, Manufactures and Population, Bulletin 101; Washington: Government Printing Office, 1909).

FEDERAL COMMITTEE ON STANDARD METROPOLITAN STATISTICAL AREAS

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Department of Labor

Alice Winterfeld
Bureau of the Census
Department of Commerce

evidence indicates, however, that there were few commuters who lived beyond the urban core and its immediate environs. Hence, a metropolitan area definition based on density may have produced much the same boundary as if commuting data had been available.

The criteria for metropolitan districts in 1910 were applied only to cities with at least 200,000 population, although a similar definition was applied to cities between 100,000 and 200,000. The basis for definitions in the 1920 census was the same as in 1910. In 1930 and 1940, however, metropolitan districts were defined for cities of at least 50,000. In 1930, the total metropolitan population had to be at least 100,000, but this requirement was dropped for 1940.[4]

It may be noted that a number of other countries independently began to define their own metropolitan areas during the same 1910-1940 period. Definitions adopted in other countries also have stressed high population density and significant commuting ties.[5]

Throughout this period, the official definitions were made in terms of minor civil divisions—county subdivisions such as townships or election districts. The use of these units as metropolitan building blocks permitted quite an exact definition of an individual metropolitan area; although administrative boundaries rarely follow the extent of urban or suburban development exactly, these building blocks were small enough that errors of overbounding or underbounding were minimized.

The metropolitan districts were intended primarily for presentation of data from the census. The fact that they were defined in terms of county subdivisions often made it difficult for other Federal, State, local and private statistical groups to compile related data for them. As a consequence, by World War II some Federal agencies had developed alternative metropolitan area definitions in terms of whole counties. Sometimes these county combinations were based as closely as possible on the Census Bureau metropolitan districts; sometimes they were based on other information. Often the various definitions did not agree with one another.

As a result, shortly before the 1950 census, a decision was made to define a set of "standard metropolitan areas" (SMA's) for presenting Federal statistics. Since the new areas were to be used by all Federal statistical agencies and not just for census purposes, the task of defining them was assigned to the Bureau of the Budget (later renamed the Office of Management and Budget), acting with the advice of a newly formed interagency committee. (This original assignment was reinforced by the Budget and Accounting Procedures Act of 1950 which, in Section 103, assigned the Bureau of the Budget responsibility for statistical policy. In October 1977 that responsibility was delegated by President Carter to the Department of Commerce, where it is implemented by the Office of Federal Statistical Policy and Standards (OFSPS).)

A total of 168 SMA's were defined for the 1950 census in the United States, plus one in Hawaii and three in Puerto Rico. To maximize the range of statistical data that could be made available, the SMA's were defined in terms of whole counties. Although it was recognized that this would lead to some inaccuracies in definition (see Appendix 1-C), it was felt that this disadvantage was outweighed by the large amount of related data that could be made available by county but not by subcounty units. However, an exception to the county building-block approach was made for New England. Here the subcounty units—the cities and towns—have always had great local importance and a wide range of statistics available, while at the same time the counties have been relatively unimportant as governmental units.[6]

The establishment of the SMA's in 1949 represented a change of technique, not of concept, in defining metropolitan areas. The underlying concept continued to be that of a large concentration of dense urban development, with strong internal commuting ties and weak ties to any other densely developed areas.

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[4]U.S. Bureau of the Census, *Fourteenth Census of the United States, 1920*, Vol. I, pp. 62-71 (Washington: Government Printing Office, 1921); *Fifteenth Census of the United States, 1930, Metropolitan Districts, Population and Area* (Washington: Government Printing Office, 1932); *Sixteenth Census of the United States: 1940*, Vol. I, p. 11 (Washington: Government Printing Office, 1942).

[5]See International Urban Research, *The World's Metropolitan Areas* (Berkeley and Los Angeles: University of California Press, 1959, pp. 6-15). Many foreign countries have used the proportion of the population engaged in or supported by agriculture as a basis for excluding outlying communities from a metropolitan area. Because the density of the agricultural population in Europe or Japan is relatively high compared with the United States, this criterion has been of greater significance in many foreign definitions of metropolitan areas than it has in this country.

[6]For example, in Connecticut and Rhode Island the counties no longer function as active governmental units. For further background on the establishment of the SMA's, see Robert C. Klove, "The Definition of Standard Metropolitan Areas," *Economic Geography*, Vol. 28 (April 1952) pp. 95-104, and Henry S. Shryock, "The Natural History of Standard Metropolitan Areas," *American Journal of Sociology*, 1957, Vol. 63, No. 2, pp. 163-170.

From their inception, the SMA's—renamed standard metropolitan statistical areas (SMSA's) in 1959—were identified and defined according to specific published criteria. These criteria were generally based on nationally available statistical data. In keeping with the underlying concept, the original published criteria issued in 1949 stressed daily commuting as the main criterion of integration of the outlying parts of the metropolitan area with its central core. The recognition of commuting as a measure of integration was also consistent with the concept of the metropolitan area as an integrated socioeconomic community whose outer boundary would include the residences of nearly all its workers as well as the workplaces of nearly all its residents.

The 1949 commuting criterion required that an outlying county have at least 15 percent of its resident workers working in the central county to qualify for inclusion. The specific 15 percent cutoff was selected primarily on the basis of examination of available data for specific areas. With certain exceptions (which are discussed in a later section), it has proved satisfactory in that the counties included in metropolitan areas by this criterion have been generally accepted as properly qualified.

In addition to the rules for determining which outlying counties qualify for inclusion, the criteria have dealt chiefly with how large a city had to be to have a metropolitan area defined; which cities in the metropolitan area qualified as "central cities" and for inclusion in the area title; how to decide whether two cities in adjacent counties, each of which could qualify for a separate metropolitan area, should be defined as two separate areas or as one; and what to do if the qualification status of a metropolitan area changed over time, for example, if new commuting data showed that a formerly independent area had come to qualify for inclusion in a neighboring area.

Changes in the official criteria have been made at the time of each census since 1950.[7] None of these changes have involved significant deviations from the basic metropolitan area concept. Several modifications have been made in the rules for determining how large a city must be to have a metropolitan area defined. Until 1958, a city of at least 50,000 had always been required, but subsequent changes have relaxed this rule somewhat, permitting areas to be defined around smaller cities when certain specified conditions were met.

Criteria changes have also been made to reflect changing national conditions. For example, the 1949 rules specified that a county must have less than 25 percent of its workers engaged in agriculture. However, with a rapidly decreasing proportion of the population engaged in farming, this requirement has now been eliminated because there are practically no counties still affected by it. The availability of new statistical data has also affected the development of the criteria. For example, although commuting was specified as the main measure of integration between outlying and central counties in the 1950 criteria, there were no national data available on the subject at that time. The commuting data used for the definitions in the 1950's were mostly taken from surveys by State and local employment agencies, which were not entirely comparable with one another in their coverage and approach. Consequently, the data base was much improved in this respect after a question on place of work was included in the 1960 census.

Throughout the history of the SMA's and SMSA's, the use of statistical data available for only a few areas has been avoided in the criteria because there would be no way to provide comparable definitions for other areas for which the specified data were not available.

In the 1950 and 1960 criteria, references were made to measures of integration other than commuting. These included the volume of telephone calls between outlying counties and the central county, circulation patterns of central-city daily newspapers, customer service and delivery areas of department stores, and the extent of locally established planning areas. These alternative measures were dropped from the criteria after national commuting data became available, not because they were necessarily poor indicators but because it was difficult to obtain nationally comparable data on them.

The successive changes in the criteria have resulted in a number of new metropolitan areas being recognized and also in a few changes in the boundaries of existing areas. However, most of the growth

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[7]The 1949 criteria were modified in March 1958 to permit two contiguous cities of not less than 25,000 and 15,000 respectively to qualify as a twin central city of an SMSA if their total population was at least 50,000. In November 1971, the rules of qualification were further expanded and changes were made in the definition of the central core and the rules regarding inclusion of outlying counties. A minor change was made in 1975 to permit current Bureau of the Census population estimates to be used as the basis for qualifying new areas. Standard Consolidated Areas (SCA's) were recognized by the Bureau of the Census in the 1960 census, and were officially defined as standard consolidated statistical areas (SCSA's) in separate criteria issued in 1975.

in metropolitan areas since 1950 has been the result of the expansion of the Nation's population and urban centers. The number of areas increased from 172 in the 1950 census to 215 in 1960, 247 in 1970, and 288 as of January 1, 1980. Also during this period, many counties were added to existing metropolitan areas in reflection of suburban expansion.

In 1977, the Federal Committee on Standard Metropolitan Statistical Areas and the Office of Federal Statistical Policy and Standards (OFSPS) began reevaluating the 1971 criteria and considering modifications that might be introduced at the time of the 1980 census. The Committee wanted to determine whether any improvements could be made in the criteria so that they would more closely reflect the basic metropolitan area concept. Over the ensuing 2 years, much of the Committee's discussion was based on comments received from users of the SMSA's, including Federal agency personnel, Members of Congress and their staffs, State and local officials, and the business and academic communities.

As noted earlier, in 1977 the responsibility for defining SMSA's was transferred from the Office of Management and Budget (OMB) to the newly established Office of Federal Statistical Policy and Standards in the Department of Commerce. The OFSPS published a first set of proposed criteria for public comment in the May 1978 *Statistical Reporter* and in the *Federal Register* for June 22, 1978 (Vol. 43, No. 121).[8] Comments on the proposals were received from several hundred individuals, representing about 50 SMSA's. After reviewing these comments, the Committee developed a revised criteria proposal for defining metropolitan statistical areas, which was published in the November 1978 *Statistical Reporter* and the *Federal Register* for November 29, 1978 (Vol. 43, No. 230). It was also distributed to all Members of Congress and to numerous organizations and individuals who had commented on the first proposal.[9]

The November 1978 proposal was favorably received by most of those who had raised questions about the provisions of the original version. However, by mail or at additional hearings[10] various further suggestions were submitted to the Committee, mostly of a technical nature. Accordingly, a series of technical modifications to the November 1978 proposal was developed by the Committee, and the proposal with these modifications received final approval on January 31, 1979 from the Statistical Policy Coordination Committee, a cabinet-level committee established by Executive Order No. 12013 in 1977.

While preparing the new standards for official publication, the Committee made an effort to simplify the statement and presentation as much as possible. The official standards are divided into 16 numbered sections (formerly called criteria); each section deals with a different specific aspect of the identification and definition process. The final standards, as published in the *Federal Register* for January 3, 1980 (Vol. 45, No. 2) were accompanied by a summary in nontechnical language as an aid to persons not already acquainted with the concepts and issues involved in the definition of metropolitan areas.

In addition, the Committee has also prepared a description of the specific procedures that will be followed in implementing the new standards, step by step. These procedures are necessarily complex, since they must provide a standard and consistent means of treating a variety of unusual situations and exceptions. Because they affect only a few metropolitan areas, some of the relatively unusual circumstances covered in the procedures have been omitted from the official standards document.

The New Standards

The following is a discussion of each section of the new standards, specifying how its provisions differ from the former criteria, the main effects on actual definitions likely to result from the changes, and the reasons why the Federal Committee on Standard Metropolitan Statistical Areas decided to adopt the provisions.

Population Size Requirements for Qualification (Section 1).—Under the new standards, qualification as a metropolitan statistical area is based on recognition of an urbanized area defined by the Bureau of the Census. If the urbanized area contains a city of at

[8]The general and New England criteria proposals were also published in the *Statistical Reporter* issues of May 1978 and August 1978, respectively. A public hearing on the first proposal was held in Washington, D.C. on July 20, 1978.

[9]In the revised proposal, the Committee decided to follow the general outlines of the main proposal published in June 1978, rather than either of the alternative options A and B (pertaining to the criteria for outlying counties) that had been published at the same time. Groups and individuals indicating that they favored one or the other of these alternatives constituted a small minority of all those who commented.

[10]Hearings on the November 1978 proposal were held in Washington, D.C. on December 15, 1978 and January 26, 1979, and in New Brunswick and Newark, N.J. on January 23, 1979.

least 50,000 population, the population size requirement for qualification is met. If there is no city of as large as 50,000, the total metropolitan statistical area population must be at least 100,000 for the area to qualify. Former Criterion 1 also accepted a city of at least 50,000 population as sufficient for qualification. However, it was more restrictive in its rules for qualification for a city of less than 50,000, requiring a city of at least 25,000 population and a total of at least 50,000 including certain narrowly defined categories of adjacent densely settled places. For places meeting these more restrictive requirements, former Criterion 1 required a total metropolitan population of only 75,000 instead of the 100,000 now required.

The effect of these changes will be to add a number of new areas centered on smaller cities that are surrounded by substantial urbanized areas. At the same time the new standards will also make it somewhat more difficult for areas with small total populations to achieve metropolitan status in the future.

The adoption of the cutoff of 100,000 for total metropolitan area population where there is no city of at least 50,000 population leaves several existing SMSA's that are below that limit. These areas will not be dropped simply because their populations remain under 100,000, provided they did qualify for separate recognition under the criteria in effect at the time they were established. Although a fully consistent approach might indicate that such areas should lose their qualification, the Committee concluded that this was outweighed by the inconvenience to users of Federal statistics of abolishing areas that were previously duly qualified.[11]

The level of 50,000 population accepted for the urbanized area represents an updating of the requirement for a city of at least 50,000 that first appeared in the criteria in 1930. Adoption of the Census Bureau's urbanized areas as the basis represents a more standard approach. The urbanized areas are defined on a consistent basis nationwide at the time of each national census; they represent the larger urban concentrations much more consistently than do corporate city areas, whose boundaries tend to vary widely from region to region because of differing practices on annexation. This is also the basis for the Committee's decision not to retain any minimum population size requirement for the metropolitan statistical area's largest city.[12]

The general requirement for a total metropolitan statistical area population of at least 100,000 was adopted in keeping with the Committee's belief that the metropolitan area concept should continue, as in the past, to identify the Nation's larger urban centers. Originally, the Committee planned to make this a universal requirement, but finally decided that a city of at least 50,000 should continue to be sufficient qualification even without a metropolitan population total of 100,000. The official criteria have followed this practice ever since 1940.

Central Counties (Section 2).—This section defines the central portion of each metropolitan area; this central portion constitutes the area to which commuting from "outlying" counties is measured. Under Section 2 a county qualifies as central if at least half of its population lives in the urbanized area, or if at least 2,500 population lives in a central city. The former criteria (in footnote 5) qualified a county as central if it contained any part of a central city, unless the part had no population or only population classified as rural by the Bureau of the Census. Otherwise, under the previous rules a county not containing part of a central city was treated as central only if it contained a city of at least 50,000 contiguous with a central city, and met certain additional requirements.

The effect of the changes will be to add some additional central counties in certain large metropolitan areas, while at the same time dropping some central counties in other areas that qualified only because they contained a small portion of a central city. Because the central counties are the basis for measuring commuting from outlying counties, these changes will have the further result of adding a few counties to certain metropolitan areas on the basis of significant commuting to counties that will now qualify as central.[13] On the other hand, the dropping of some counties from the central category will usually have no effect on a metropolitan boundary.

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[11]The Committee's decisions on continuing to recognize a city of 50,000 as sufficient qualification, and retaining the recognition of duly constituted metropolitan statistical areas below 100,000, were also influenced by the establishment of the four-category classification into levels (see Section 7). This classification will facilitate the adoption of 100,000 as a lower limit in specific applications of the standards by users who prefer a higher cutoff.

[12]In practice it is not anticipated that any urbanized area or metropolitan statistical area would qualify without a city of at least 10,000 population.

[13]The counties likely to be affected by this change are specified in List 2 appended to the *Federal Register* of January 3, 1980 and the December 1979 *Statistical Reporter*.

In the original (1949) criteria, the central area comprised only the county or counties containing the central city or cities. This produced arbitrary results in several areas where a large city constitutes a separate county by itself (for example, Philadelphia, Washington, New Orleans). The central area in such cases was much smaller than for cities such as Chicago or Los Angeles that are located in a large county, and a change in the criteria in 1971 attempted to achieve a more standard treatment. The new standards introduce greater consistency by adopting the Bureau of the Census urbanized area, representing the densely developed metropolitan core, as the basis for determining the central counties (see also Appendix 1-C).

A special provision (Section 2B) is included to deal with the unusual situation of a central city located in more than one county. A county containing a small portion of a central city does not qualify automatically as central if the population of the central city portion is below 2,500. However, such counties almost always do qualify under the outlying county rules for inclusion in the metropolitan statistical area itself.

Outlying Counties (Section 3).—This section comprises the standards for determining which counties adjacent to the central counties should be included in the metropolitan area. This aspect of the definition process is one of the most challenging because it involves deciding at what point the zone of high commuting around the urban core has become too rural or sparsely settled to qualify for inclusion in the metropolitan area. Under the new standards, these requirements have been made somewhat more restrictive, reflecting the view by a majority of the Federal Committee on SMSA's that the former criteria tended to include some counties that were too sparsely settled.

The general approach of Section 3 is similar to former Criteria 2 and 3. As before, the intent is to include all counties that reach the 15 percent commuting level provided they also meet specified requirements of "metropolitan character," which are designed to exclude counties that are very rural or sparsely populated. As noted earlier, the previous requirement that at least 75 percent of the resident labor force be nonagricultural has been dropped because it no longer serves to exclude more than a handful of counties.

As before, the criteria of metropolitan character are less rigorous for counties with relatively high commuting than for counties with lower commuting rates. However, even outlying counties with the highest levels of commuting (over 50 percent) must still have a population density of at least 25 persons per square mile to qualify for inclusion in an area.[14]

The criteria of metropolitan character are now phrased in terms of four distinct commuting levels (50 percent or more, 40 to 50 percent, 25 to 40 percent, and 15 to 25 percent) instead of the previous two levels (30 percent or more, 15 to 30 percent). Previously, counties with from 15 to 30 percent commuting had to meet two out of three criteria of metropolitan character; Section 3, while adopting the same general approach, requires one out of three requirements to be met for counties in the 25 to 40 percent commuting range, and two out of four requirements for counties in the 15 to 25 percent commuting range.

As before, the criteria of metropolitan character include density and percentage urban; intercensal growth is again included, but only for counties in the 15-25 percent commuting range. An additional criterion of metropolitan character has been added—the presence in the county of a significant portion of the urbanized area. Most important, the specific cutoffs for density, percentage urban, and intercensal growth have all been raised somewhat.

The effect of these changes is to make it somewhat more difficult for outlying counties to qualify for inclusion, especially on the basis of a high commuting percentage alone. Consequently, a number of counties currently within SMSA's are expected to be excluded after 1980 commuting data become available (see List 1 in the January 3, 1980 *Federal Register*). Although a considerable number of counties will be affected, their total 1970 population is only about 1.4 million, or about 1 percent of the current SMSA total. However, their combined land area of 48,102 square miles represents nearly 10 percent of the current SMSA total, reflecting the fact that these are relatively sparsely settled counties on the outer edges of the metropolitan areas.

A new provision, Section 3B, provides for local opinion to be considered in cases where a county has

[14]These density requirements are not applied to central counties, which qualify under Section 2 solely on the basis of their population in the urbanized area or in the central city(ies). Some central counties, notably in the Western States, have a low overall population density in spite of including all or most of a qualifying urbanized area.

about the same level of qualifying commuting to the central counties of two different metropolitan statistical areas. Previously such a county was assigned to the area to which it had the higher commuting. The new provision was added because the Committee recognized that when commuting levels are similar there are other factors worthy of consideration in determining the assignment of a county. This provision should also minimize the possibility of a county being shifted from one metropolitan area to another on the basis of commuting data, only to be moved back again because the next census shows a slight shift in the direction of the commuting.

During the period of review of the criteria proposals, the criteria for qualifying outlying counties were one of the two aspects that drew the greatest amount of public comment. Most comments did not really disagree with the Committee's conclusion that outlying counties should possess a modicum of metropolitan character in addition to high commuting; nevertheless, they usually opposed dropping specific counties from a metropolitan statistical area because these counties were already included and there was reluctance to see the existing association dissolved.[15] Of the arguments offered in support of retaining sparsely settled outlying counties as metropolitan, the strongest emphasized that however scattered the population of such a county, the commuting data indicated that its primary economic support was associated closely with the metropolitan core. This position was held by some members of the Committee itself; however, the majority of the Committee concluded that the metropolitan concept called for recognition of factors in addition to the extent of the metropolitan laborshed.

Another argument frequently offered for the retention of low-density outlying counties was that they obviously were part of the metropolitan market or trading area, or that they were already included in a regional planning area, or both. The Committee considered these arguments unconvincing because the purpose of the metropolitan statistical area definition is not to define marketing or planning areas (see Appendix 1-A).

Central Cities (Section 4).—Central cities are commonly regarded as relatively large communities,[16] with a denser population and a higher concentration of economic activities than more recently developed outlying or "suburban" areas. As such, central cities have numerous common characteristics and problems, and the central city/suburban distinction is important in many statistical presentations, permitting users to compare the respective central cities with one another separately from the respective suburban areas.

The largest city in each metropolitan area has always been recognized as a central city. Ever since the establishment of the SMA's in the 1950 census, the identification of any additional central cities has been made essentially on the basis of their being at least one-third the size of the area's largest city (see former Criterion 4). However, a review of commuting and other data for all of the existing central cities has shown that certain commuting measures identify the cities having central character much more precisely than the earlier criterion. Consequently, the Committee has adopted new requirements based on two commuting measures: at least 60 percent of the city's resident workers[17] must work within the city (that is, must not commute to work somewhere else), and the ratio of the number of persons working in the city to the number of resident workers[17] must be at least 0.75 (in other words, there must be at least 75 local jobs per 100 working residents).

All cities of at least 25,000 population will qualify as central cities if they meet these two commuting requirements. In addition, to accommodate the circumstances of smaller metropolitan areas, cities between 15,000 and 25,000 that meet the two commuting requirements and also have at least one-third the population of their area's largest city will also qualify as central cities. As previously, any city with at least 250,000 population will be a central city; in addition, any city with at least 100,000 persons working within its limits will be classified as central.

The chief effect of these changes is to identify certain smaller places as central cities because they have

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[15]Expressions in favor of retaining specific counties often came from groups in the core city or with areawide interests, rather than from the affected county itself. In a few cases, counties listed by the Committee as likely to be dropped by the new rules expressed satisfaction with that result.

[16]In many smaller metropolitan statistical areas, there are central cities with relatively small populations, for example in small twin- or triple-city areas. In the context of the urban concentration, however, these central cities are nevertheless the dominant local communities.

[17]In the application of the criteria, "resident workers" excludes residents who were not in the labor force or for other reasons not working at the time of the census. Workers whose place of work was not reported are also excluded, to avoid any bias toward the residence side in the employment/residence ratio.

central-city characteristics, even though their populations are considerably smaller than that of the main city. Examples of these smaller central-type cities include Cambridge, Lynn, and Waltham near Boston, Niagara Falls in the Buffalo area, Pontiac in the Detroit area, Aurora and Joliet in the Chicago area, and Berkeley and Pasadena in California. At the same time, a few cities will lose their central city designation because they have a relatively high level of outcommuting, or because they provide jobs for relatively few of their own residents, or both—in other words, because they resemble suburban areas more closely than they do other central cities. Examples are Garden Grove, California; Norton Shores, Michigan; Warwick, Rhode Island; and Colonial Heights, Virginia.

A provision has been added (in the Appendix section on Definitions) stating that under specified conditions a township or New England town may be recognized as a central city, provided the other requirements for central cities (Section 4) are met. A small number of towns and townships may meet the requirements.

Titles (Section 8).—Under the new standards, the title of a metropolitan statistical area is always composed of names of central cities that were qualified by Section 4, and begins with the name of the largest central city. However, for the first time not all central city names will appear in area titles. The existing maximum of three city names has been retained to avoid unduly cumbersome titles, and generally, only central cities with a population at least one-third that of the area's largest city will be included. Therefore, some smaller places that will qualify as central cities under the new rules (see Section 6) will not have their names included in the title of their metropolitan statistical area.

As in the former criteria, any city of at least 250,000 population will be included in its area title; and under a new provision any city with at least 100,000 workers will also be included.[18] A provision has been added (footnote 6 to Section 8B) to lessen the frequency with which area titles change because of shifts in the relative population ranking of central cities.

Levels (Section 7).—There is a wide range of opinions about how large an urban area must be to justify classification as "metropolitan."

The official metropolitan criteria have recognized urban centers as small as 50,000 ever since 1930, but there are many users who believe that a much higher cutoff should be established. Although the Committee decided to make the rules for qualification a little more stringent (as described above), it did not seriously consider changing to a much higher cutoff level, because this would have had the effect of disqualifying many existing areas, including some that have been officially recognized ever since 1950. Instead, the Committee decided to identify four levels of metropolitan areas, using the total metropolitan population as the basis. The population cutoffs for these levels have been set at 1,000,000, 250,000, and 100,000.

After considerable discussion, the four levels have been identified simply as Level A, Level B, Level C, and Level D rather than by descriptive terms, since none of the specific sets of terms proposed appeared to have wide support.

Many studies have demonstrated that larger urban centers typically carry on numerous economic and social functions that are rare or absent in smaller cities. For example, essentially all cities large enough to be recognized for metropolitan area status have sizable department stores and daily newspapers, banks of more than local importance, a 4-year college, and scheduled airline service (although this may be through an airport shared with a neighboring metropolitan center). However, only the largest metropolitan cities have many headquarters of major corporations, a Sunday newspaper with regional circulation, a wide range of specialized medical facilities, a major university, and a major-league athletic team. Above the 1 million level, most metropolitan cities have all of these functions, and the significance of this particular size has some degree of public recognition. Data assembled by the Federal Committee on SMSA's showed that the level of 250,000 corresponds approximately to the level at which most metropolitan centers typically acquire wide regional influence, including such functions as large banks, major Sunday newspapers, a concentration of regional branches of major national firms, and several hospitals. The 100,000 level was included because it is now the cutoff for qualification as a new metropolitan statistical area.

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[18]In addition, Section 8A(3) provides for a title to include the name of the largest city of any area that was combined with a neighboring area under the provisions of Section 6, even if that city has less than one-third the population of the combined area's largest city. Although not specifically included in the former criteria, this provision has been observed in titling areas for some time.

For these reasons, the Committee believes that there are many applications in which it is desirable to present statistics for metropolitan areas broken down by population size categories. Further, the identification of levels of metropolitan areas will aid users who may wish to limit a study to the largest areas, or to focus on a smaller or a middle-size group of areas.

Besides these changes, the Committee decided to simplify the official terminology by dropping the word "standard," thus reducing the basic term to three words, "metropolitan statistical area." In this discussion, the present abbreviation, SMSA, has generally been used in referring to the areas as defined now or in the past, but "metropolitan statistical area" is generally used when reference is being made to the effects of the new standards.

Primary Areas and Consolidated Areas (Sections 5, 6, and 9).—As mentioned earlier, the official criteria for identifying and defining metropolitan areas have proved generally quite satisfactory since they were first developed; subsequent changes in the criteria have been largely in the nature of correcting details. The major exception to this general statement involves the treatment of sizable neighboring cities which might or might not be treated as a single metropolitan area. Hitherto the official structure has included two groups of provisions for dealing with such situations, former Criterion 8 and the criteria for identifying and defining standard consolidated statistical areas (SCSA's), adopted in 1975.

Former Criterion 8 provided for consideration of a range of factors in determining whether or not to treat adjacent centers as parts of a single area,[19] and it has been retained (Section 6) with few changes. However, in practice Criterion 8 has been applied primarily to instances where two smaller cities, each of which qualified for recognition as an SMSA, regarded themselves as constituting a single metropolitan area, although their urbanized areas were still separate and intercommuting had not reached the 15 percent level. In such cases the areas have sometimes been merged under Criterion 8 without insisting that the commuting requirement be met. However, Criterion 8 has not been used by itself as the basis for separating two cities that did qualify to be included in a single area on the basis of having substantial commuting interchange.

In the largest metropolitan complexes, sizable urban centers of independent origin are sometimes completely connected by urban development, so that there is no visible break between them. Within such physically continuous urban areas, the different parts are typically linked by large volumes of commuting; however, sometimes the *percentages* of commuters are relatively low.[20]

In the past, reflecting the underlying concept of a single concentration of dense urban development, the criteria have usually treated cities that were in a single urbanized area as parts of a single metropolitan area. However, beginning in 1959, some cities included within major urbanized areas achieved recognition as centers of separate SMSA's, typically on the basis that their commuting ties to the area's main core were below the 15 percent cutoff. The separate recognition of these areas introduced a non-standard aspect into the metropolitan area classification, because not all cases with less than 15 percent commuting were separated, while at the same time a few areas with more than 15 percent commuting to the core were given separate recognition although the criteria did not provide for it.

In giving recognition in these instances, the Committee was, in fact, recognizing that the largest metropolitan areas may be regarded from two aspects. From one point of view, the entire urbanized area and the counties with heavy commuting to it constitute a single large metropolitan area, which for convenience may be referred to as the "greater" area. For many statistical purposes, this approach provides the best comparability with other metropolitan areas around the country since, like them, it encompasses the entire continuously urbanized area within a single statistical boundary. This approach also conforms quite closely to the basic metropolitan area concept outlined earlier.

The "greater" approach was evidenced in the recognition for census purposes of two standard consolidated areas (SCA's) in 1960 for New York and Chicago, each area comprising the SMSA as it had

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[19]Criterion 8(b) has limited such action to cities within 20 miles of one another; the new standards retain this provision but change the distance measure to 25, measured from city center to city center rather than from city limits to city limits. Use of city limits as the basis has introduced considerable arbitrary bias because of the wide variation in annexation practices from region to region.

[20]In both 1960 and 1970 a strict application of the 15 percent commuting rule would have separated Oakland from San Francisco and St. Petersburg from Tampa. These well-recognized twin-city pairs have long been recognized as single metropolitan areas in official statistics.

been defined prior to the separation of other SMSA's in 1959. The SCA's were not established to supplant their component SMSA's but as an addition to them, so that statistical data could be provided for both types of area. This approach was broadened in 1975 when the Federal Committee on SMSA's issued specific criteria for standard consolidated statistical areas (SCSA's) and defined 11 such areas in addition to New York and Chicago.

From another point of view, however, the separate components of many large metropolitan areas constitute important metropolitan entities in their own right. Although the component area usually has considerable commuting to the urbanized area's main city, a majority of its workers are employed locally. Often the component area's population is large enough to support a wide range of local functions and services, comparable in most respects to those of a free-standing metropolitan area elsewhere in the country. This may be especially true where the component area was originally an independent urban center, whose close affiliation to the large nearby city is a recent development. In such a case, although an increasing volume of intercommuting may have strengthened the relationship of the component center to the larger center, often these ties have not greatly altered the basic local pattern of services and activities for which the smaller city remains an important center.

These and similar points were made by many Members of Congress, local officials, and members of the public who commented on the first set of proposed criteria after their publication in June 1978. Although these proposals did not directly address the question of possible component areas, they left unaltered a provision of the former criteria (Criterion 5) that called for SMSA's to be merged with others if two successive national censuses showed that commuting between their central counties exceeded the 15 percent cutoff level in either direction. Under this criterion, 12 existing SMSA's would have been merged with larger adjacent areas in 1980. Most of these 12 areas did qualify under the official criteria at some time in the past.

The general tenor of the comments received by the Committee from these existing SMSA's scheduled for merger was that they should continue to be separately recognized in Federal statistics, and that if the commuting data did not support the separate recognition, the use of this measure should be carefully reexamined.

After further discussion, the Committee concluded that there was a legitimate need for statistical data for major metropolitan components, and that only by recognizing two tiers of areas could the metropolitan area system meet, in a standard fashion, the needs of those whose emphasis is on the component level of area as well as those whose need is for data on the "greater" level. The new standards achieve this by providing that within any "greater" metropolitan area of one million or more population, primary metropolitan statistical areas (PMSA's) may be recognized if certain requirements are met relating to commuting, total population, and percentage urban. If the "greater" area has any primary metropolitan statistical areas that qualify, it becomes a consolidated metropolitan statistical area (CMSA), composed of two or more primary areas. All other metropolitan statistical areas (those of less than one million, and those over that size but within which no component areas qualify under the rules) are designated simply metropolitan statistical areas (MSA's).

To provide a systematic basis for arriving at standard definitions, the new standards incorporate the 1975 SCSA criteria, with certain changes, into those that determine the overall extent of the "greater" metropolitan area. The result is to establish "greater" metropolitan areas that typically combine all counties included in a single urbanized area, plus those counties with the qualifying level of commuting to the central core. The use of the SCSA rules also combines as single "greater" areas certain neighboring MSA's that have separate urbanized areas but a substantial commuting interchange.

The new standards have altered the 1975 SCSA criteria in two respects. Each metropolitan statistical area in a consolidated area must have an urban percentage of at least 60, not 75 as formerly; a total of at least 1 million population is required for the entire consolidated area, rather than for at least one of the component areas, as previously. (Modifications in the rules for titling consolidated areas are discussed below.) These changes will increase somewhat the number of consolidated areas and add a few additional metropolitan statistical areas to existing consolidated areas.

Once these "greater" areas have been defined by Sections 1 through 6, the standards for identifying primary metropolitan statistical areas are applied to areas with a total population of at least 1 million. Un-

der these rules (Section 9), any SMSA defined prior to 1980 but included in a greater area by the preceding sections is entitled to retain its identity for statistical purposes as a primary metropolitan statistical area.[21] In addition, detailed statistical guidelines are prescribed under which additional components of the "greater" area can also qualify for separate recognition as a primary metropolitan statistical area; these guidelines appear in part in Section 9, with the remainder in the detailed procedures.

Although the standards devote a separate section to specifying that existing SMSA's may retain their separate status as primary metropolitan areas, all existing SMSA's that would be included in "greater" areas would qualify under the statistical guidelines in any case.

In some instances, there are portions of "greater" areas that could qualify as primary metropolitan statistical areas under the guidelines, but it appears that there is no significant local support for separate statistical recognition. The committee decided to make recognition of such areas contingent on a demonstrated local interest.[22]

The introduction of the two-tier approach in the November 1978 criteria proposal appeared to meet most of the concerns relative to loss of identity that would result if existing SMSA's were to be merged with others. Generally, representatives of the areas involved recognized the existence of a need for data on the consolidated level as well as on the primary or component level. One result of the presentation of data for two tiers of areas will be to encourage users both inside and outside the government to decide which set of data corresponds best to their particular application.

PMSA and CMSA Titles (Sections 10 and 11).—The standards for titling PMSA's (Section 10) permit either county names or central-city names to be used, reflecting the diverse character of the areas that will qualify. To maintain a reasonable degree of standardization, combinations of city and county names are ruled out. Local opinion as to the most appropriate name will be considered. One result will probably be that certain existing SMSA's titled with city names will change to county names when they become PMSA's.

There was substantial interest expressed during the public comment periods on the rules by which consolidated metropolitan statistical areas would be titled. Section 11 provides general guidelines and prescribes that local opinion will always be consulted. The result of the new rules will be to change the titles of most of the existing consolidated areas. However, to maintain standardization and continuity, each consolidated area name must still begin with the name of its largest city.[23]

New England Metropolitan Statistical Areas (Section 12 and 13).—The New England areas will continue to be defined in terms of cities and towns rather than counties, as in former Criteria 6 and 7. Alternative definitions in terms of counties—the New England County Metropolitan Areas (NECMA's)—will continue to be defined for the information of those preferring a county-unit approach. Generally, the changes in the New England criteria are designed to make them as comparable as possible with those for the other States; however, the use of cities and towns as building blocks continues to require more complex rules.

Qualification in New England is based on recognition of an urbanized area as in the other States. If the area contains a city of at least 50,000 population, the population size requirement is met; if not, the metropolitan statistical area population must be at least 75,000 to qualify, not 100,000. The lower size level was adopted because the definition in terms of cities and towns has a smaller extent than a county definition.

The definition of the central core for the purpose of measuring commuting from outlying areas must have special rules. These rules for defining the central core include the main changes made by the Committee in the New England criteria (apart from the addition of new standards for identifying primary metropolitan statistical areas in New England as in the other States).

The new standards for the central core (Section 12), like those for defining the central counties in the main

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[21]In a few cases, the boundaries of the present SMSA's would be enlarged or otherwise changed.

[22]The recognition of primary metropolitan statistical areas under the new standards will represent a reasonably consistent identification of more important areas of this type across the Nation. A fully consistent identification of such areas would require use of data in addition to commuting. More significant, the use of county building blocks is frequently awkward for defining major components of large metropolitan complexes. Some areas with the characteristics of PMSA's cannot be separately identified because they are included within the same county as the area's largest city.

[23]Section 11B(1) also includes a provision intended to minimize the frequency of changes in the initial city name.

criteria, are based primarily on the Bureau of the Census urbanized area—cities and towns with more than half their population in the urbanized area of a city[24] comprise that city's central core, except for a few places whose commuting ties with that city and its immediate environs are relatively weak. The New England central cores defined by these standards are generally comparable in concept to the central counties defined by the main criteria in other States, although they are smaller in extent because they exclude the outlying portions of counties that would be included in a non-New England State.

Previously the central core was limited to places directly contiguous to the central city provided they had at least 100 persons per square mile and had sufficient commuting to qualify for the metropolitan area. The effect of the changes is to expand the core considerably for Boston and one or two other large metropolitan areas, through including cities and towns that are within the urbanized area but not directly contiguous to the central city. For smaller metropolitan areas, however, the effect is to reduce the extent of the central core, since some places directly contiguous to a central city do not have at least 50 percent of their population in its urbanized area. In addition, because the central cores are the basis for measuring commuting from outlying cities and towns, these changes will have the further result of adding additional cities and towns to the Boston area and some other large metropolitan areas. On the other hand, the dropping of some places from the central core usually will not result in dropping any cities and towns from the metropolitan statistical area.

The criteria for including additional cities and towns in a New England metropolitan statistical area have been altered slightly, to permit towns with a population density between 60 and 100 per square mile to qualify if they have at least 30 percent of their workers commuting to the central core. This provision is consistent with the approach followed for the other States of applying a less stringent requirement of metropolitan character (in this case population density) to areas with higher levels of commuting.

Section 13B provides for consideration of local views in situations with a near-tie in commuting, on the same basis and for the same reasons as for counties outside New England by Section 3B. (A similar provision, Section 12D, has also been included in the standards for defining the New England central cores.) In addition, Section 13C provides that a place with greater commuting to a nonmetropolitan place than to a central core will be defined as nonmetropolitan except in cases where commuting levels are very similar. Including such cities and towns within a metropolitan area would be inconsistent with the general concept that the places included should have only weak ties to communities outside the metropolitan area. The expansion of several central cores and the change in criteria for outlying cities and towns, based on 1970 data, will result in a number of additional communities being added to existing SMSA's. A tentative listing of the places believed likely to be added, deleted, or transferred to a different area after 1980 data are issued can be found on page 382.

Primary and Consolidated Metropolitan Statistical Areas in New England (Sections 15 and 16).—The rules for PMSA's for New England follow the same general approach as those for primary areas in other regions. Each potential PMSA must first have a component central core defined; the applicable statistical guidelines, which are necessarily complex, appear in part in Section 15, with the remainder in the detailed procedures. The rules are designed to include all of the consolidated metropolitan statistical area's central core that is more closely related to a local center than to the consolidated area's main city.

After component central cores have been identified within a Level A MSA, the remaining places in the MSA are generally assigned to the core with which they have the closest commuting ties.

In some cases two or more adjacent groups of communities qualify as separate primary areas but also qualify to be combined under the rules. The standards leave open the decision as to whether or not such areas should be merged; local opinion on each side of the question would be an important factor in reaching a decision. Likewise, local opinion will be sought to determine to which of two component central cores a given place should be assigned if it has substantial commuting interchange with each. Once again this reflects a recognition on the part of the Committee that commuting, while probably the best single indicator generally available, is not the only measure deserving consideration in deciding "borderline" situations.

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[24]Places in a contiguous urbanized area also may be included in a core if they meet the commuting requirements. This provision (which is not paralleled in the definition of the central core in other States) is included to avoid having the core definition based too specifically on the details of the urbanized area definition.

Under these standards, Boston and Hartford-New Britain-Bristol will become consolidated metropolitan statistical areas, and the Norwalk and Stamford SMSA's will become primary metropolitan statistical areas in the New York Consolidated Metropolitan Statistical Area. The new standards will probably also result in the merger of the New Haven and Meriden areas as a single New Haven-Meriden Metropolitan Statistical Area. The Boston CMSA will include primary areas centered on Brockton, Lawrence-Haverhill, and Lowell. In addition, primary areas may also qualify for recognition for the Lynn-Salem area and the Framingham area.

Many of these New England changes involve a change in nomenclature—for example, redesignation of an existing SMSA as a primary metropolitan statistical area—rather than major boundary changes. However, the new standards will also provide separate recognition to some additional (primary) areas that meet the statistical requirements. In addition, the changes will increase consistency between the treatment of New England metropolitan areas and those of other States, and therefore are in keeping with the Committee's general intention of establishing a standard set of areas suitable for statistical comparisons across the country.

Loss of Designation.—How quickly to reflect a change in the status of an area or county on the basis of new statistical data is another point on which many comments have been received by the Committee. For most purposes involving current statistical applications, a definition based on the most up-to-date information is undoubtedly preferable. However, since some metropolitan areas have now been officially identified for more than 30 years, the issue of geographic continuity over time also arises; changes in definitions can prove awkward for many users, unless statistical series can be made available for past dates based on the new areal definitions. The Committee is also aware that the very wide uses to which the official metropolitan area definitions have been applied has resulted in their being employed to determine boundaries for local councils of government, planning agencies, and a variety of other purposes. Many users assume that if the official metropolitan area definitions change, these local boundaries must be changed also—an assumption that may be undesirable as well as unwarranted.

The Committee's conclusion, as reflected in the new standards, is that changes called for by the standards should be made immediately. There is only one significant exception—existing metropolitan statistical areas will not be disqualified simply because their population is less than 100,000, assuming they qualified as metropolitan statistical areas in the past under the criteria then in effect.[25]

Under the new standards, abolition of a duly constituted metropolitan statistical area is unlikely to occur, but merger with an adjacent area will occur once census data indicate that it should take place under the standards. However, most such mergers will result in an area with a total population of more than 1 million, and as a result existing metropolitan statistical areas affected by merger will nearly always continue to be recognized as primary metropolitan statistical areas.

In the previous criteria (Criterion 5), a county could be transferred to a different area immediately upon evidence from census data that this was called for, but a county could not be dropped from metropolitan status until two successive censuses showed it as not qualified. Under the new standards, both types of changes will occur immediately; however, in cases where the transfer to a different area would be based on a small difference in the county's commuting rates to the two sets of central counties (5 percentage points or less), local opinion will be taken into account before making a reassignment of the county (Section 3B). Such transfers will remain rare.

Concluding Note

The purpose of the metropolitan statistical area classification is to provide a nationally consistent set of definitions of metropolitan areas suitable for the collecting, tabulating, and publishing of Federal statistics. The metropolitan area concept on which the definitions are based is that of a single large concentration of dense urban development with close internal commuting ties and weak ties to any other area.

The metropolitan statistical areas are not designed to replace definitions developed on the basis of locally

[25]There are three additional minor exceptions. First, once properly designated, a metropolitan area will not be disqualified on the basis of lacking an urbanized area of the prescribed size (Section 1, footnotes 2 and 3); the effect of this provision will be to preserve an established area even though its urbanized area population drops below 50,000; such instances are expected to be rare. The remaining two exceptions, which have already been discussed, involve the inclusion and sequence of city names in area titles (Section 8B, footnote 6) and the similar provision, Section 11B(1), relative to the first city in a consolidated area title.

significant criteria. However, national rankings and similar comparisons made on the basis of local definitions of metropolitan areas often prove unsatisfactory because of the differing criteria and approaches used in determining area boundaries. The official metropolitan statistical area definitions provide individual local areas with a definition of their own area that can be compared with confidence with definitions of areas elsewhere in the Nation.

The metropolitan statistical area definitions are also not designed to serve as a substitute for defined marketing, media, or planning areas.

Finally, the metropolitan statistical area definitions are not designed to serve as a general-purpose geographic framework applicable to nonstatistical activities. A number of nonstatistical Federal programs have adopted the metropolitan statistical areas for implementation purposes. This has sometimes had undesirable results, particularly when the character of the nonstatistical program was not consistent with the concept of the metropolitan area reflected in these standards. The Office of Federal Statistical Policy and Standards has stressed in Directive No. 7 that no Federal department or agency should adopt these statistical definitions for a nonstatistical program unless the agency head has determined that this is an appropriate use of the classification.

Appendix 1-A

RELATIONSHIP BETWEEN METROPOLITAN STATISTICAL AREAS, TRADING AREAS, AND SIMILAR CONCEPTS

The metropolitan area differs in concept from various other types of areas which are also defined in terms of a central urban concentration. Examples of such definitions are trading or marketing areas that delineate the geographic territory served by or tributary to a city for specified products or services. Areas defined for media purposes, such as newspaper circulation areas or television areas of dominant influence (ADI's), have the same general characteristics as trading areas. The Economic Areas defined by the Bureau of Economic Analysis, U.S. Department of Commerce, represent a widely used area definition of this type.[26]

Like a metropolitan area, a trading or marketing area consists of a central concentration of dense urban development together with outlying territory linked to it by close economic ties. However, there are three important differences between trading areas and metropolitan areas. First, the links between the outlying and central portions of a trading area need not be as strong as the internal commuting ties that link the different portions of a metropolitan area. For example, residents of the outlying portions of a city's trading area typically visit it weekly or monthly for shopping, medical attention, or other services, but not daily as do commuters. Second, practically all portions of the country can be readily included in some trading area, and definitions of trading areas usually cover the entire country. (Metropolitan statistical areas as currently defined include less than one-sixth of the total area of the country.) As a result, the outlying portions of a city's trading area are typically quite rural in character; in contrast, outlying metropolitan territory is primarily suburban in character.[27] Finally, well-recognized trading areas in some parts of the country are centered on urban concentrations of 10,000 population or even less, which are too small to be regarded as metropolitan even though they serve a wide market area.

There is also confusion from time to time between metropolitan areas and regional planning areas. Metropolitan areas in general, and metropolitan statistical areas in particular, have often been regarded as appropriate geographic definitions for planning purposes, and the jurisdiction of some regional planning agencies does correspond to an SMSA. However, the criteria appropriate for delimiting planning jurisdictions frequently do not correspond to those established for metropolitan statistical areas, and it is evident that regional planning areas in the various States are defined following a wide variety of different approaches, in contrast to the standard approach adopted for metropolitan statistical areas.

The metropolitan area should also be distinguished from related but broader concepts associated with the term "megalopolis." A megalopolis is a grouping of related metropolitan areas, such as the series that stretches along the northeastern seaboard of the United States between Boston and Washington. The

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[26]See Bureau of Economic Analysis, *BEA Economic Areas (Revised 1977)* (Washington: Government Printing Office, 1977). This publication defines 183 BEA areas, which cover the entire United States.

[27]Following the metropolitan area concept, outlying territory that is not suburban would be excluded from the metropolitan area by definition. However, many metropolitan statistical areas do include some nonsuburban outlying territory, primarily because of the use of counties as building blocks (see Appendix 1-C).

component metropolitan areas in a megalopolis are sometimes contiguous, sometimes separated by stretches of less densely developed territory. The ties that connect them, while significant, are much less tangible than the daily commuting ties that link together the different portions of a single metropolitan area.[28] Commuting ties between the separate metropolitan areas in the megalopolis of the Northeast are quite minor, and the same is true in similar groups of closely spaced metropolitan areas located around the Great Lakes and elsewhere.[29]

Appendix 1-B

RELATIONSHIP BETWEEN METROPOLITAN AREAS AND URBANIZED AREAS

Although the urbanized area and the metropolitan area of a city are closely related in concept, there are important differences. The urbanized area has a more limited territorial extent. As defined by the Bureau of the Census, the urbanized area consists of the physically continuously built-up area around each larger city, and thus corresponds generally to the core of high and medium density at the heart of the metropolitan area. In concept, a metropolitan area is always larger than its core urbanized area, even if it is defined in terms of small building blocks, because it includes discontinuous urban and suburban development beyond the periphery of the continuously built-up area. The metropolitan area may also include some rural territory whose residents commute to work in the city or its immediate environs, while the urbanized area does not include such territory.

In practice, because the metropolitan statistical area definitions use counties as building blocks, considerable amounts of rural territory with few commuters are often included. However, even in New England, where cities and towns are used as building blocks, metropolitan statistical areas are generally much larger in extent than their core urbanized areas.

Like the standard metropolitan areas (SMA's), the urbanized areas were introduced for the 1950 census and have been updated at each subsequent decennial census according to specific criteria. The urbanized area boundary is determined in great detail, outlining the actual extent of dense development quite precisely. The urbanized area criteria generally define a boundary based on a population density of at least 1,000 persons per square mile, but also include some less densely settled areas such as industrial parks, railroad yards, and so forth, if they are adjacent to dense urban development. Under the 1980 criteria, an urbanized area must include at least one incorporated city and have a total population of at least 50,000.

It sometimes occurs, due to county boundary anomalies, that a portion of the urbanized area extends across the metropolitan statistical area boundary into a nonmetropolitan county. However, such portions are usually quite small.

The new standards provide that each metropolitan statistical area will be associated with an urbanized area. However, the reverse is not true—there will be some urbanized areas that will not be in any metropolitan statistical area. This will occur when an urbanized area fails to qualify as a metropolitan statistical area with at least 100,000 population, and also does not contain any city with at least 50,000 population.

In addition, under both the new standards and the current criteria, some metropolitan statistical areas contain more than one urbanized area. This occurs, for example, when

a. Two or more urban concentrations not far apart and of generally similar size have separate urbanized areas but qualify as a single metropolitan statistical area (for example, Greensboro, High Point, and Winston-Salem, North Carolina, in the 1970 census). Often the metropolitan statistical area title includes the name of the largest city of each of the component urbanized areas.

b. A very large metropolitan statistical area includes one or more smaller separate urbanized areas within its outer boundaries. Examples are the separate urbanized areas around Joliet, Aurora, and Elgin within the Chicago metropolitan statistical area.

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[28]See Jean Gottmann, *Megalopolis* (New York: Twentieth Century Fund, 1971); Jerome P. Pickard, *Dimensions of Metropolitanism*, Research Monograph 14 (Washington: Urban Land Institute, 1967); and *ibid.*, "U.S. Metropolitan Growth and Expansion, 1970-2000, with Population Projections," Chapter 4, pp. 127-182, in U.S. Commission on Population Growth and the American Future, *Population, Distribution, and Policy* (Commission Research Reports, Vol. V) (Washington: Government Printing Office, 1972).

[29]See discussion in Forstall and Fulton, *op. cit.*, pp. 7-10 and table 8.

Appendix 1-C

THE USE OF COUNTIES AS BUILDING BLOCKS FOR METROPOLITAN STATISTICAL AREAS

The use of counties as building blocks introduces considerable inexactness into the metropolitan statistical area definitions, because county boundaries often fail to follow the actual extent of urban or suburban development. A metropolitan area defined in terms of whole counties generally includes non-suburban territory in the outlying sections of some counties, and sometimes excludes suburbanized territory just across the line in a county which is mainly rural. In addition, certain specific definitional problems may result. If the actual metropolitan area is small in population and the county is unusually large in areal extent, substantial exaggeration or "overbounding" may result from adopting the county as the unit. A county whose population is mainly suburban may be excluded from the metropolitan statistical area because it also includes a large sparsely populated section and hence has a low average population density. A large independent urban concentration may be included within another city's metropolitan statistical area simply because it happens to be within a large county whose overall statistics qualify it for inclusion in that metropolitan statistical area. Moreover, if another county immediately beyond the independent urban center happens to have heavy commuting to that center, this may result in including the county in the larger metropolitan area even though it lacks significant commuting to the area's main urban concentration. Finally, a single county located between two metropolitan statistical areas may have substantial commuting to each, but must be assigned to one or the other, or to neither if the commuting percentages in each direction fail to meet the standard requirement.

Although all of these problems actually occur, all are relatively uncommon. For most metropolitan statistical areas, the use of county building blocks produces only modest imprecisions with regard to population data. The inaccuracy resulting from the use of county units is much greater for data on land areas and other measures of extent; as a result, land area data for standard metropolitan statistical areas can be compared only roughly.

Maps showing standard metropolitan statistical area boundaries tend to exaggerate actual metropolitan development substantially. Because numerous metropolitan areas have common boundaries, such maps tend to suggest a merging or coalescing of separate urban concentrations that does not actually exist. In fact, there are many pairs of contiguous metropolitan areas whose common boundary runs through completely rural territory.[29]

Despite these problems, the very wide range of statistical data that is available for counties but not for sub-county geographic units has caused most users to prefer that county units continue to be the basis for the official metropolitan statistical area definitions.[30]

Appendix 1-D

THE USE OF LOCAL OPINION IN THE OFFICIAL STANDARDS

The new standards specify a number of situations in which local opinion will be considered before a final decision is reached. Most of these represent situations where the statistical data indicate a "borderline" condition, for example in which a county or place could qualify for inclusion in either of two different areas. The standards also call for consultation with local opinion in certain situations, such as determining titles for areas, in which no one statistical indicator is appropriate. When these conditions exist, the Federal Committee on SMSA's believes that local views can provide valuable insights for the Committee's use in making a decision.

The consideration of local opinion is always subject to any statistical guidelines specified in the standards or the detailed procedures. The Committee ascertains local opinion through the appropriate congressional delegation.

The specific situations in which local opinion will be considered are:

a. The assignment of counties or New England areas when commuting is about equal in two different directions (Sections 3B, 12D, and 13C; similar provisions appear in the detailed

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[30]In fact, a number of users prefer the New England County Metropolitan Areas (NECMA's) to the official metropolitan statistical areas defined in terms of cities and towns. For a set of definitions of metropolitan areas that does not use county building blocks, see the Rand McNally & Company *Commercial Atlas and Marketing Guide* (111th edition, Chicago, 1980).

procedures for defining primary metropolitan statistical areas).

b. The provision in Section 6 for combining areas whose central cities are within 25 miles of each other, without requiring the 15 percent commuting level to be met. This reflects the Committee's conclusion that commuting data alone are not always sufficient to determine whether two nearby urban centers of similar size in effect constitute a single metropolitan area or two separate areas.

c. The choice of titles of primary metropolitan statistical areas (Section 10B). Some primary metropolitan statistical areas comprise a major portion or sector of a large metropolitan complex but do not contain any single city or cities that serve as a center for the whole primary area; in such cases, county names may be more appropriate as an identifier than names of cities. In such cases, the Committee believes that local opinion will usually be the best judge of the most appropriate title. Any city names included in the title must qualify as central cities under Section 4, and to avoid confusion and maintain a reasonably standard treatment, a PMSA title cannot consist of a mixture of city and county names.

d. The choice of titles of consolidated metropolitan statistical areas (Section 11B). These major complexes are so large and diverse that the Committee recognizes that a limitation to city names may not always be appropriate. Hence, local opinion is always solicited, subject to the guidelines of Section 11. A degree of standardization is maintained, and continuity with past practice achieved, by requiring that the title of each CMSA begin with the name of its largest city.

e. Certain aspects of the qualification of primary metropolitan statistical areas. In essence, these provisions (Section 9A and 9B, and 15A and 15B) leave to local opinion the final decision as to whether a potential PMSA that qualifies under the statistical guidelines will actually be recognized in Federal statistics. The Committee's position is that there is little point in recognizing additional areas, even though qualified, unless a local need for separate statistical data exists.

Most of the provisions of the standards, of course, are applied without any modification on the basis of local opinion; to permit that would void any claim that the standards produce a set of metropolitan statistical areas defined consistently throughout the country. Sections 1, 2, 3, 4, 5, and 7, dealing with qualification, central counties, outlying counties, central cities, consolidations, and levels, are all applied on the basis of the published statistical requirements, with the exception of the assignment of a county or community that has about equal qualifying commuting to two different areas. As a result, the outer boundaries of metropolitan territory are not subject to any variation on the basis of local opinion.[31] This is also the case with the titles of free-standing metropolitan statistical areas (Section 8), which are always titled with the names of central cities.

Appendix 1-E

EFFECTS OF CHANGES IN AREA DEFINITIONS ON AVAILABILITY OF STATISTICAL DATA

Many users assume that much more statistical information is available for counties included in metropolitan areas than for nonmetropolitan counties. This concern is often exaggerated. In population and housing census publications, most data that appear for SMSA's are also published for every county. The exceptions are certain very detailed cross-classifications for the larger SMSA's that are not published for smaller SMSA's or individual counties, although they are generally available at cost in unpublished form.

Certain types of census data have traditionally been provided primarily for metropolitan areas. The best-known example is the census tract reports. However, in general the 1980 tract reports will not reflect any changes in SMSA's that result from the new standards, other than the recognition of areas newly established on the basis of 1980 total counts for counties, cities, and urbanized areas. Specifically, for counties now in SMSA's which have already had a 1980 census tract plan approved by the Census Bureau, the tract data will be published as part of the appropriate SMSA tract report, regardless of whether the county would still qualify for the SMSA under the new standards.

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[31] A second exception is also possible in New England if a given outlying city or town has about equal commuting to a central core and to a nonmetropolitan place, in which case local opinion is consulted before determining whether the place should be included in any metropolitan statistical area.

For 1980 as in the past, some nonmetropolitan counties have also arranged to be tracted. In 1970, data for some of these nonmetropolitan tracts were published in the reports for adjacent SMSA's and the rest were made available at cost in unpublished form. In 1980, the Bureau plans to publish the data for all tracted areas. A county that ceases to be metropolitan after 1980 can arrange to continue to be tracted.

The economic censuses (censuses of business and manufactures) taken by the Bureau of the Census as a rule provide more data on SMSA's than on individual counties. The same is true of some sample surveys at both the Federal and State levels. The difference in coverage is not due to the area's metropolitan or nonmetropolitan status, but results from the size of its total population or business volume. The rules developed to protect the confidentiality of individual survey responses and economic census reports often preclude the publication of detail for areas with relatively small numbers of business establishments. Therefore, larger counties and larger SMSA's usually have more data published than smaller areas. Also, when a choice must be made between published data for an SMSA or for one of its component counties, the SMSA, as the larger area, is normally preferred. However, there may sometimes be more data published in the business censuses for a large nonmetropolitan county than for a small county in an SMSA.

Whether an SMSA contains more than one county may affect the range of economic census data published. Single-county SMSA's in general have little, if any, more published data than the single county would have by itself, although the coverage may appear in a different section of the report, under a metropolitan rather than a nonmetropolitan heading. For an SMSA comprising two (or more) large counties, most data on each of the counties are usually published separately. Recognition as an SMSA also produces totals for the two-county combination; most of these totals can also be obtained by combining the published data for the separate counties.

For an SMSA containing one large and one or more small counties, the SMSA totals may include considerable data that are also published for the large county but not for the smaller ones. Again, however, the data available for the large county, and for the SMSA itself, will not greatly exceed what would be available for a nonmetropolitan county of the same size.

Implementation of the 1980 Standards

The new standards for designating and defining metropolitan statistical areas were published in the *Federal Register* on January 3, 1980. The Federal Committee on Standard Metropolitan Statistical Areas (SMSA's) will implement these standards in two stages. A two-stage implementation is necessary because of the time that must elapse before commuting data become available from the 1980 census. Adjustments to this implementation schedule will be made if required by the availability of 1980 census data or if other technical problems arise.

The first stage of implementation will consist primarily of establishing new areas, while the second will focus on reviewing the boundaries of existing areas (see further details below). After each stage of the review has been completed, an announcement of changes will be made by the Office of Federal Statistical Policy and Standards. Announcement of the new areas and other changes will be made early in 1981, as soon as the census data needed to define them have become available for all States. Additional changes in titles and definitions will be announced after the second-stage review has been completed for all areas.

The new areas established at the first stage of implementation will appear in the tabulations and publications of final 1980 census data. With certain exceptions specified below, the boundaries, central cities, and titles of existing standard metropolitan statistical areas will not be changed at stage 1 and, therefore, will appear in the 1980 census publications as defined on January 1, 1980.

While it would be highly desirable for the new standards to be reflected fully in the 1980 census publications, this would be possible only by delaying the issuance of those publications for several months. The two-stage implementation schedule generally parallels the procedure followed after the 1960 and 1970 censuses. Plans are under discussion for the issuance of a selection of 1980 census data in terms of the revised metropolitan statistical area definitions as soon as possible after their determination.

First Stage of Implementation

New SMSA's.—As final 1980 census population counts for cities, counties, and urbanized areas become available from the Bureau of the Census around the end of 1980, the new standards will be used to designate and define new areas that qualify under Sections 1 through 4 (Sections 12 through 14 for New England). These sections contain the requirements for qualifying population, central counties, outlying counties, and central cities. Most of these new areas will involve an urbanized area of at least 50,000 population that results in an SMSA of at least 100,000 population (75,000 in New England). There may also be a few areas that qualify on the basis of a city reaching 50,000 population within its corporate limits. Each new area will include the county containing the urbanized area's largest city, and other counties if half of their population is included within the urbanized area. In some cases, outlying counties will be included because they qualify under Section 3, using 1980 census data on population density, percentage urban, and the other criteria of metropolitan character, in conjunction with 1970 commuting data, since commuting data for 1980 will not be available at that time. A parallel procedure will be followed to determine which cities and towns qualify for inclusion in any new areas in New England (Section 13). The central cities and title of each new area will be determined under Sections 4 and 8 of the new standards, using 1980 population and 1970 commuting data.

Possible Changes in Existing Areas.—A newly qualifying SMSA may be combined with another area if the Federal Committee on Standard Metropolitan Statistical Areas concludes that the provisions of Section 6 have been met. Such a merger might result in a change in the definition and title of an existing standard metropolitan statistical area. Some SMSA's were given provisional designation during the 1970's on the basis of Bureau of the Census population estimates rather than census results. These provisional areas will lose their qualification as SMSA's if the 1980 census does not confirm that they qualified under the criteria in effect at the time they were established. With these two possible exceptions, the boundaries, central cities, and titles of existing standard metropolitan statistical areas will not be changed at stage 1 and, therefore, will appear in the 1980 census publications as defined on January 1, 1980.

Consolidated Areas.—The provisions of Section 5 with regard to standard consolidated statistical areas (SCSA's) also will be implemented for stage 1 so far as possible. Existing SCSA's will be expanded, and appropriate new consolidated areas recognized, in cases where existing SMSA's or new ones designated on the basis of 1980 census data qualify for inclusion. This will be determined using 1970 commuting data and 1980 total population and percentage urban. The title of any new or altered consolidated area will be determined following the 1975 SCSA criteria, to maintain consistency with the remaining consolidated areas already titled. These changes in SCSA's will be reflected in the tabulations and publications of final 1980 census data.

Terminology.—The present terminology "standard metropolitan statistical area" and "standard consolidated statistical area" will be retained for stage 1.

Second Stage of Implementation

Review of 1980 Commuting Data.—The second stage of implementation will not take place until after commuting data from the 1980 census become available for all States, probably in 1982. At that time, the Federal Committee on Standard Metropolitan Statistical Areas will review the boundaries of each area, including those that were newly established in the first stage. As a result, counties will be added (or in some cases deleted), based on their level of commuting to the central counties of the area and their degree of metropolitan character. The central cities and titles of each area will also be reviewed and where necessary revised.

PMSA's Identified.—Metropolitan statistical areas with a total population of 1 million or greater will be reviewed under Sections 9, 10, 11, 15, and 16 of the standards to identify and define areas within them that could qualify for recognition as primary metropolitan statistical areas (PMSA's). Final designation of those areas as PMSA's will be made provided there is substantial local support for separate recognition for Federal statistical purposes. Titles will be determined for primary metropolitan statistical areas and consolidated metropolitan statistical areas following the guidelines in the standards.

Levels and Terminology.—The classification of areas into levels (Section 7) will also become effective during the second stage, and the new designations *metropolitan statistical area* (MSA), *primary metropolitan statistical area* (PMSA), and *consolidated metropolitan statistical area* (CMSA) will be introduced at that time.

These six data sources are expected to be prepared in substantially the form described, in most cases as computer printouts, for use by the Federal Committee on Standard Metropolitan Statistical Areas in their review of the results of the 1980 Census of Population and Housing.

URBANIZED AREA LIST (UA LIST)

This list includes all Bureau of the Census urbanized areas (UA's) of at least 50,000 population, in two sections. All data items are taken from or based on the 1980 census.

Section 1—for each UA, specifies:

(1) Population of UA

(2) For each UA in more than one county (and each New England UA):
Population of each county portion (in New England, county and city/town portion);
Flag designating the county portion with the largest population.

Section 2—for each county containing a UA or UA portion, specifies:

(3) Total population of county;

(4) Population of each UA portion located in county, with flag for portion containing UA's largest city (or its largest portion);

(5) County/UA codes, describing relationship of county to UA's:

A—County has at least 50% of its population in one UA, and contains no portion of any other UA's.

B—County has at least 50% of its population in one UA, and also contains all or a portion of at least one other UA, including that UA's largest city (or its largest portion).

C—County has at least 50% of its population in one UA, and also contains all or a portion of one or more other UA's, but in no case including the UA's largest city (or its largest portion).

D—County has less than 50% of its population in any one UA, but contains the largest city (or its largest portion) of one UA; this UA has more population in the county than any other UA.

E—County has less than 50% of its population in any one UA, but contains the largest city (or its largest portion) of two (or more) UA's, each with a larger population in the county than any other UA (with its largest city outside the county).

F—County has less than 50% of its population in any one UA, and contains the largest city (or its largest portion) of at least one UA; this UA has less population in the county than another UA whose largest city is not located in the county.

G—County has less than 50% of its population in any one UA and does not contain the largest city (or its largest portion) of any UA.

Section 3—List of UA's that are contiguous with other UA's.

COUNTY DATA

For each central county or group of central counties identified by Section 2, a data sheet is prepared in a standard format, specifying the following information for each county that has significant commuting to or from the central county(ies):

(1) Total population;

(2) Urban population;

(3) Population density per square mile;

(4) Percent of population classified as urban;

(5) Percent change in total population, 1970-1980;

(6) Resident workers with place of work reported;

(7) Percent of resident workers commuting to jobs outside the county;

(8) Number of workers commuting from county to central county(ies);

(9) Number of workers commuting to county from central county(ies);

(10) Percent commuting to central county(ies)—percent (8) is of (6);

(11) Percent commuting from central county(ies)—percent (9) is of (6);

(12) Total commuting percentage—total of (10) and (11).

All these data items are from the 1980 census.

Lines to subtotal specified items (for example for the counties qualified for the MSA) are also provided. COUNTY DATA sheets are also prepared for New England areas for use in defining New England County Metropolitan Areas (NECMA's). However, the defining of New England MSA's utilizes the TOWN LIST and TOWN FLOWS sources described below.

COUNTY FLOWS

This table specifies the commuter flow (if any) between every pair of counties. This complete commuting matrix is used to determine total commuter interchange between adjacent MSA's and for the definition of PMSA's.

CITY LIST

This table, arranged by State and county,[1] lists all cities[2] of 15,000 or more in 1980. It specifies for each city:

(1) Total population, broken down by county portions if the city is in more than one county[1];
(2) Resident workers with place of work reported;
(3) Total persons (workers) reported as working in the city;
(4) Resident workers who commute to a job outside the city;
(5) Employment/residence ratio—(3) divided by (2);
(6) Percent outcommuting—percent (4) is of (2);
(7) UA in which located, if any;
(8) Central City Qualification (CCQ) Codes, as follows:

Code H: Each city where (1) is at least 250,000 or (3) is at least 100,000.

Code J: Each additional city where:
(1) is from 25,000 to 250,000 *and*
(5) is at least 0.75; *and*
(6) is less than 60%.

Code K: Each city where:
(1) is from 15,000 to 25,000 *and*
(2) is at least 0.75; *and*
(6) is less than 60%.

Items (1) through (6) are from the 1980 census, and Item (7) refers to 1980 UA definitions. Item (8) is determined from the other items.

TOWN LIST

This table, arranged by State and county, lists each New England city[3] and town, specifying:

(1) Total population;
(2) Urban population;
(3) Population density per square mile;
(4) UA or UA's in which located, if any, with percent of total population included in (each) UA;
(5) Resident workers with place of work reported.

All these data items are taken from or based on the 1980 census.

TOWN FLOWS

This table specifies for each New England city[3] and town the commuter flow (and the percent each flow comprises of resident workers with place of work reported) to and from each other city and town; and summaries giving total flows (and percentages) to and from specified groups of cities and towns, such as central cores and component central cores.

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[1] Cities located in more than one county are listed under the county containing their largest county portion. For the counties containing the other portions, the table gives only the city name, followed by "(part)," and the total population of the portion.

[2] Including towns and townships that have been recognized by the Bureau of the Census as census designated places (see section on Definitions in the December 1979 *Statistical Reporter*).

[3] Where a city, borough, or incorporated village comprises only part of a town, only the town is regarded as a potential building block and included in these tables. If such a city, borough, or village were to qualify as a central city, the balance of the town would automatically qualify for inclusion in the same MSA and/or component central core and/or PMSA as the city or borough. Only the city, borough, or village itself would constitute a central city.

Procedural Steps

This statement provides an illustrative outline of the specific steps that will be followed in the process of designating and defining each individual metropolitan statistical area (MSA), primary metropolitan statistical area (PMSA), and consolidated metropolitan statistical area (CMSA). It should be read in conjunction with the official standards; the relevant section of the standards is specified at the start of each step. The procedural steps are intended to cover all significant aspects of the definition process. Hence, this statement is of necessity complex. Details of some of the procedures will probably be altered at the time the actual redefinition process takes place.

The steps appear in the left-hand column. In the right-hand column are comments and explanatory notes, some of which are included to clarify certain unusual situations affecting the definition of only a few metropolitan statistical areas.

The steps often refer to the data sources described in the preceding section. The names of these sources appear in CAPITALS. The term "interim MSA" is used in the steps to refer to a given area as it has been defined up to that point in the procedure. Terms like "interim title" are used in a similar sense.

From time to time the steps call for the preparation of lists or maps. For convenience in reference, these are numbered in order of preparation. The comments column indicates when a given list or map has been completed.

When a complete review of all metropolitan statistical area definitions is made after the release of 1980 commuting data, unusual situations may arise which are not covered by these procedures. If so, they will be considered on an individual basis by the Federal Committee on Standard Metropolitan Statistical Areas (SMSA's) in order to develop a solution consistent with the general aims of the MSA standards.

Steps	*Comments*
CENTRAL COUNTIES	
1. (Section 2A) For each UA on the UA list, determine the central county(ies)—those that have at least 50% of their population included in that UA or contain its largest city (UA LIST, item 5, codes A, B, C, or D).	If a county that is qualified as a central county by a given UA also includes all (or the largest portion) of the largest city of another UA (UA LIST item 5, codes B or E), that UA is also treated as a "qualifier UA" for the MSA. In each such case, the central counties for the MSA are those with at least 50% of their population in the qualifier UA's. The county containing a UA's largest city (or its largest portion) qualifies as a central county even though less than half the county population lives in that city's UA, provided this is the largest UA in the county (code D in UA LIST item 5). A county containing a UA's largest city (or its largest portion) but with more population in another UA (Code F in UA LIST item 5) is subject to individual review by the Federal Committee on SMSA's.
2. (Section 2B) Assume that the central counties determined by step 1 comprise an interim MSA. Prepare an interim list (List 1) of its central cities with their populations by reviewing the CITY LIST for the included counties and checking the CCQ codes (item 8). Each city coded H or J is a central city. A given city coded K is also central if the interim MSA's largest city has less than 75,000 population and no more than 3 times the given city's population.	

Steps	*Comments*
3. (Section 2B) Check whether any of these central cities has at least 2,500 population in a county not already designated as central by step 1 (CITY LIST item 1), or qualifying as central for another MSA under step 1. If so, and the city is within a UA at least 50% included in the interim MSA (CITY LIST item 7; UA LIST items 1 and 2), the additional county is also a central county for this MSA.	This step is not used to combine the central counties of otherwise separate MSA's.
OUTLYING COUNTIES	
4. (Section 3) Locate each set of central counties on a county outline map (Map 1). Also, determination of the central counties permits creation of a COUNTY DATA sheet for each potential MSA, providing the basis for identifying outlying counties.	
5. (Sections 3A(3) and 3A(4)) For each interim MSA, check the UA LIST to determine whether portions of the qualifier UA or UA's (step 1) are located in a county not qualified as central. Such a county may be eligible as an outlying county if it has at least 10% of its population, or at least 5,000 population, in the qualifier UA's.	In Section 3A(3)(c) and 3A(4)(d), "the urbanized area that resulted in qualification" includes any qualifier UA (see comments on step 1).
6. (Section 3A) If any county meets the requirements of step 5, check the COUNTY DATA sheet to determine whether it meets one of the four combinations of conditions of Section 3A. As each county is checked, mark the COUNTY DATA sheet and Map 1 to show it as qualified or not qualified for the MSA.	Care must be taken not to overlook the provision of Section 3A(4), footnote 5, which may permit a county to qualify on the basis of commuting *from* the central county(ies), or of total commuting to and from the central counties.
7. (Section 3A) In similar fashion, beginning with the counties directly contiguous to the central counties, check each other county listed on the COUNTY DATA sheet to determine whether it meets one of the four combinations of conditions of Section 3A. A county is automatically disqualified if both of the relevant commuting percentages are less than 15% and total less than 20% (COUNTY DATA items 10, 11, and 12). Likewise, any county with a population density of less than 25—COUNTY DATA item 3—is automatically disqualified. Mark each county checked as qualified or disqualified on Map 1 and the COUNTY DATA sheet. Continue the procedure until all counties contiguous to qualified counties have been checked and determined to be not qualified for this MSA. Determine the population of the interim MSA by totaling the population of the included counties (COUNTY DATA item 1).	(Section 3B) If a given county qualifies on the basis of commuting to the central county(ies) of two different interim MSA's, it is assigned to the area to which commuting is greatest, unless the relevant commuting percentages are within 5 points of each other, in which case local opinion as to the most appropriate assignment, obtained through the congressional delegation, is also considered. If a county has at least 15% commuting to the central counties of an MSA, it is included in that MSA even if it also contains the main part of another UA. However, if two or more counties qualify as central counties of a single MSA under steps 1 through 3, and one but not all of these counties qualifies as an outlying county of another MSA under steps 4 through 7, the situation will be evaluated by the Federal Committee on SMSA's.

Steps	*Comments*
CENTRAL CITIES	
8. (Section 4) For each interim MSA, determine the central cities by reviewing the CITY LIST for the included counties and checking the CCQ codes (item 8). Each city coded H or J is a central city. Revise List 1 (see step 2).	If an interim MSA has no H or J cities, any city coded K in item 8 is a central city. A city more than 50% of whose population is outside the MSA is disqualified for recognition as a central city of that MSA.
9. (Section 4D) Determine which H or J city has the largest population (List 1). If this is at least 75,000, go on to step 10. If it is less than 75,000, check CITY LIST item 8 for cities coded K; each such city is a central city if its population is at least one-third that of the largest city. Prepare a reference list (List 2) of the interim MSA's with their populations (step 7); also include their central cities, with populations, by combining the List 1's for each MSA.	If the reference list of interim MSA's and central cities includes any place which (1) has a portion of at least 2,500 population in a county not already classified as central, and (2) is located within a UA at least 50% included in the interim MSA, the additional county is also a central county of the MSA. In such a case, steps 3 through 9 must be repeated to determine the central counties, outlying counties, and central cities of the MSA.
QUALIFICATION AS AN MSA	
10. (Section 1) To determine whether each interim MSA meets the population size requirements of Section 1, check the population of its largest city (List 2); if this population is at least 50,000, the interim MSA qualifies. If the largest city's population is less than 50,000, check the total population of the interim MSA (List 2); if the total is at least 100,000, the interim MSA qualifies. Mark each interim MSA on List 2 as qualified or not-yet-qualified.	
11. (Section 1B, footnote 3) Compare the full list of interim MSA's (List 2) with the full list of currently defined SMSA's outside New England, to pair them when possible and group them as follows: (a) Existing SMSA and qualified interim MSA which generally correspond, or existing SMSA which is included in a qualified interim MSA. (b) Existing SMSA and not-yet-qualified interim MSA which correspond. (c) Qualified interim MSA with no corresponding existing SMSA. (d) Not-yet-qualified interim MSA with no corresponding existing SMSA. The qualified interim MSA's in groups (a) and (c) are not affected by this step. The interim MSA's in group (d) are disqualified from further consideration by this step. Each of the not-yet-qualified interim MSA's in group (b) must be reviewed for possible qualification under Section	An MSA retained by this step although lacking a total population of at least 100,000 in not entitled to add any counties but is restricted to its current definition. (Section 1A, footnote 2) An existing SMSA that was duly designated under criteria in effect at the time of designation will not be disqualified on the basis of lacking a UA of at least 50,000. If such an SMSA is identified by this step, it would be necessary to review it under all of the preceding steps to determine if its current definition was correct.

Steps	*Comments*
1B, footnote 3; if an SMSA was duly designated under criteria in effect at the time of designation, it will not be disqualified on the basis of lacking a total population of at least 100,000.	
Correct Map 1 and List 2 to reflect the results of this step.	Map 1 should be retained as a record of the boundaries of each interim MSA prior to any consolidations or combinations.
CONSOLIDATIONS AND COMBINATIONS	
12. (Sections 5 and 6) To determine which interim MSA's may qualify to be consolidated (Section 5) or combined (Section 6), check Map 1 and list (List 3) each pair of interim MSA's that are contiguous (that is, have a common boundary at any point).	Even where several interim MSA's adjoin one another, each pair of contiguous interim MSA's should be listed separately.
13. (Section 5A) Determine the commuting interchange between each pair of interim MSA's in List 3 by totaling from the COUNTY FLOWS, and calculate the percent this interchange is of the resident workers with place of work reported in the smaller interim MSA of the pair (totaled from COUNTY DATA item 6).	In each pair, the smaller interim MSA is the one with the smaller total of resident workers with place of work reported.
14. (Section 5A(1)) Any pair with an interchange of at least 15% may qualify to be consolidated. Prepare a list (List 4) of such potential consolidations and their component interim MSA's; some potential consolidations may include three or more interim MSA's.	A potential consolidation may involve three or more interim MSA's where (for example) two interim MSA's each have at least 15% interchange with a third interim MSA. Interchange is measured between individual pairs, not cumulatively, so "chains" of areas generally do not qualify. If an interim MSA had interchange of at least 15% to two different interim MSA's that did not have 15% interchange with each other, the situation would require special review.
15. (Section 5A(2)) Any pair whose interchange is 10 to 15% may qualify if the UA's are contiguous (UA LIST Section 3) or shared. Add each qualifying pair to List 4.	Pairs in which a single UA is shared (that is, contains a central city from each of the two MSA's) can be identified from List 2 and the UA LIST (see also step 5).
16. (Sections 5B and 5C) To ascertain whether the percent urban and population size requirements for consolidation are met, determine the total population and total urban population of each potential consolidation and its component interim MSA's (totaling from COUNTY DATA items 1 and 2). Delete any interim area from the potential consolidation and List 4 if it is less than 60% urban. Each potential consolidation whose total population is at least 1 million qualifies as a single interim MSA.	Section 5 consolidates interim MSA's already defined but does not add any new territory to the interim MSA's as a group. List 4 should be retained as a record of the consolidated areas and their constituent parts. It also records those areas which would qualify for consolidation except for the requirement of 1 million total population.
17. (Section 6) Annotate List 3 to show those contiguous areas actually consolidated by step 16. Review each of the remaining contiguous pairs	

Steps	*Comments*
and determine which have UA's that are contiguous (UA LIST section 3), or have their largest central cities within 25 miles of each other (by measuring the highway distance from downtown to downtown as shown on a published State highway map).	
18. (Sections 6B and 6C) Examine each potential combination identified by step 17 for evidence of close economic and social ties; through the congressional delegation, determine local views concerning a possible merger. After decisions have been made, annotate List 3 to show any combined areas.	Each such case is examined individually. A combination is not made unless local opinion in both areas strongly supports it and there is convincing evidence of close economic and social ties. A commuter interchange of 15%—or 10% if UA's are contiguous (see step 15 and List 4)—constitutes such evidence. Section 6 combines interim MSA's already defined, but does not add any new territory to the interim MSA's as a group. List 3 should be retained as a record of all contiguous interim MSA's showing those consolidated and those combined.
LEVELS	
19. (Section 7) Revise List 2's summary of qualified interim MSA's and their populations to show the areas consolidated or combined (List 3). For each interim MSA on List 2, determine the level (size category) as specified in Section 7A and annotate the list accordingly. Interim MSA's with less than 1 million population (levels B, C, and D) receive final qualification as MSA's by this step. For interim MSA's of 1 million or more, continue with step 23.	The central cities, which have already been identified on List 2, are not affected by this step.
TITLES OF MSA's	
20. (Section 8) To determine the title of each MSA in levels B, C, or D, rank the central cities located in each area (List 2) in descending order of total population.	
21. (Section 8) For each MSA determine an interim title comprising the name of the largest city, and the names of the next two largest central cities (if any) that meet Sections 8A(1) or (2). Include the name or abbreviation of each State into which the MSA extends. Prepare a list (List 5) of all interim titles.	Check for any additional central cities qualified for the title by Section 8A(3); see step 18 and List 3 for the areas combined by Section 6. State names or abbreviations are sequenced in the order in which their central cities appear in the title; States with no central cities are then sequenced in order of their total population with the MSA. The remaining central cities of the MSA (if any)—those that are too small to qualify for the title or rank 4th or later in sequence—continue to qualify as central cities even though not included in the area title.

Steps	*Comments*
22. (Section 8B, footnote 6) Compare each title on List 5 with the title of the corresponding existing SMSA. Check each difference in city name selection or sequence to determine whether the existing title should be preserved by Section 8B, footnote 6 (using CITY LIST items 1 and 3). Correct the interim titles where necessary. The resulting titles are the final MSA titles; add them to List 2. This step completes the definition and titling of MSA's other than those in Level A.	Normally the provisions of Section 8 will result in the title beginning with the name of the largest city in the largest qualifying UA (step 1); if this does not result, or if the names of qualifying central cities located in the same UA would not be grouped together in the title, the Federal Committee on SMSA's will review the situation and will consult with local opinion before determining a final title. In instances of city-county consolidations and other cases where the full official city name is not the one in common use, the latter may be adopted for the area title provided there is concurrence from local opinion, as determined through the congressional delegation. List 5 should be retained as a record of all titles for MSA's of less than 1 million, which in addition, specifies those affected by Section 8B, footnote 6. List 2 should be retained as a list of all interim MSA's of more than 1 million and all final MSA's of less than 1 million, with their populations, central cities, and titles.
PRIMARY MSA's	
23. (Section 9C) For each interim MSA categorized as Level A by step 19, prepare a list (List 6) of all counties included and an outline map (Map 2) showing these counties. For each county, identify in five separate columns whether it meets each of the following five requirements: (1) Has at least 100,000 population (COUNTY DATA item 1); (2) Contains no part of the largest central city of the Level A MSA (CITY LIST item 1); (3) Has at least 60% of its population classified as urban (COUNTY DATA item 4); (4) Has less than 35% of its resident workers working outside the county (COUNTY DATA item 7); (5) Has at least 35%, but less than 50%, of its resident workers working outside the county (COUNTY DATA item 7). Prepare a list (List 7) of counties meeting each of the requirements (1) through (4) for each Level A interim MSA.	Sections 9 through 11 do not apply to the portion of the New York (consolidated) MSA in New England, which is covered instead by Sections 15 and 16. Sections 9 through 11 do apply to Puerto Rico. Steps 23 through 27 include the specific statistical guidelines for determining the geographic definitions of individual PMSA's that are referred to in Section 9C.
24. (Section 9C) Check List 6 for counties meeting all four requirements (1), (2), (3), and (5) of step 23. If there are no such counties in the MSA, only one such county, or two which are not contiguous to each other (Map 2), continue with step 25. If there are two or more such counties that are contiguous, check to determine whether the pair	

Steps	*Comments*
meets the following two requirements: (1) The two counties have commuting interchange (determined from checking COUNTY FLOWS) amounting to at least 20% of the employed workers living in the smaller county, and the smaller county does not have greater commuting interchange with any other county in the Level A MSA other than the county(ies) containing the central city; (2) The pair has less than 35% of its resident workers working outside the pair (calculated using COUNTY DATA and COUNTY FLOWS).	
25. (Section 9C) A potential pair meeting the requirements of step 24 may also qualify for pairing with another potential pair, and/or for pairing with a single-county PMSA qualified by step 23 (List 7); any contiguous single-county PMSA's (step 23) may also qualify for pairing. For any pairing to be possible, the two requirements of step 24 must be met with respect to the counties and/or pairs that would comprise the new pair. For each Level A MSA, add a list of any possible pairs to List 7.	Some counties (or pairs) may meet the criteria for pairing with more than one other county (or pair). Note that only counties that met requirements (1), (2), (3), and (4), or (1), (2), (3), and (5) of step 23 can enter into consideration for pairing. Pairing may take place only within the same level A MSA.
26. (Sections 9B and 9C) A qualified single-county PMSA or potential pair (List 7) may qualify as a PMSA provided local opinion strongly supports separate recognition for statistical purposes. Local opinion must be obtained through the congressional delegation with regard to the qualification of each possible area, the pairing of each possible pair, and the choice of most appropriate pairing when two or more alternatives are possible. In general, if two or more alternative pairings are possible and the commuting interchange is more than 5 percentage points greater in one than in any of the others, that pairing will be preferred to the others. Annotate List 7 and Map 2 to show the single-county areas and pairs it is determined are qualified by strong local support—the interim PMSA's. Flag their constituent counties on List 6.	This step should also check for conformance with Section 9A; at present any area that was recognized as a separate SMSA on January 1, 1980 would appear on List 7. Note that recognition of an existing SMSA as a PMSA under Section 9A is subject to determination of its boundaries under these guidelines, which may result in boundaries differing from those the SMSA had on January 1, 1980 (Section 9C). However, a group of counties that qualified as an interim MSA under Sections 1 through 4 but was consolidated with another area by Section 5 may qualify as a pair on that basis, if local opinion supports the pairing. Before recognizing a given PMSA, the Federal Committee may decide to require local support (through the congressional delegation) for the recognition from the remainder of the Level A MSA. List 7 should be retained as a record of the potential pairs indicating which were actually qualified.
27. (Section 9C) On List 6, check each remaining (unflagged) county that met requirement (2) of step 23. Use COUNTY FLOWS to determine the percent of workers who commute to each interim PMSA or pair already identified in this MSA. In general, the county is assigned to the contiguous PMSA to which it has the greatest commuting, provided this is at least 15%. Show these assignments on List 6 and Map 2.	For this step, neither reverse commuting (to the subject county from the PMSA or pair) nor total commuting is considered. Commuting is measured only to the interim PMSA's identified in steps 23-26, and not to other counties that qualify for addition to the interim PMSA as a result of step 27. Local opinion is not required for this step, except where a county has qualifying commuting to two dif-

Steps	*Comments*
	ferent interim PMSA's with the percentages separated by less than 5 points. A county must be individually reviewed if the effect of step 27 would be to assign it to a PMSA with which it is not contiguous.
28. (Section 9D) If a Level A MSA has one or more PMSA's designated by steps 23-27, the county(ies) not included in any PMSA by those steps constitute an additional PMSA, whose largest city is the Level A MSA's largest city. Annotate List 6 and Map 2 to show this additional PMSA. The Level A MSA itself is designated a consolidated metropolitan statistical area (CMSA). From the series of List 6's, prepare a list (List 8) of the CMSA's, their constituent PMSA's, and the counties included in each, with the total population of each county, PMSA, and CMSA. If a Level A MSA has no PMSA's qualifying under steps 23-27, it is designated an MSA and is titled as specified in steps 20-22.	The additional PMSA containing the largest city will include at least those counties that did not meet requirement (2) of step 23. The counties that comprise the additional PMSA must always form a contiguous group (see step 27). List 6 should be retained as a record of the basis on which individual counties qualified for inclusion in a PMSA. Map 2 should be retained as a record of the boundaries of each qualified PMSA.
LEVELS AND TITLES OF PMSA's	
29. (Section 10A) Assign each PMSA to its proper level based on total population (List 8), following the categories of Section 7A.	
30. (Section 10B(1)) Using List 8, assign the central cities of each CMSA (List 2) to the proper PMSA.	The central city(ies) in a PMSA are not independently determined but consist of those central cities already determined for the CMSA which are located in the PMSA. It is possible for a PMSA not to contain any central city(ies). If a central city has portions in two or more different PMSA's, it is considered for the title only of the PMSA containing its largest portion. However, in determining sequence by population size, its total population is considered.
31. (Section 10B(1)) Determine a tentative *city* title for each PMSA, by following the procedure of steps 20-21.	
32. (Section 10B(2)) Determine a tentative *county* title for each PMSA by ranking the area's counties in descending order of population (List 8) and using up to three county names.	
33. (Section 10C) Local opinion, ascertained through the congressional delegation, will be consulted before making the final selection of the tentative city title or the tentative county title as the PMSA title. Add the final title to List 8.	A title comprising a combination of city and county names or the names of non-central cities will not be approved. However, a regional title strongly supported by local opinion will be considered, provided it is unambiguous and suitable for a national standard.

Steps	*Comments*
TITLES OF CMSA's	
34. (Sections 11B(1) and (2)) For each CMSA, determine a tentative title following these guidelines, using List 8.	The first-named city in each CMSA title must be checked against the existing consolidated area (SCSA) title to ensure conformance with Section 11B(1), second sentence, using CITY LIST items (1) and (3).
35. (Section 11B) Local opinion, ascertained through the congressional delegation, is always consulted before determining a CMSA title. As specified in Section 11B(3), regional designations will be considered. Add the final title to List 8. This completes the steps for defining and titling MSA's, PMSA's, and CMSA's outside the New England States. In addition, these steps are also applied to New England to produce definitions of New England county metropolitan areas (NECMA's).	List 8 should be retained as a record of the composition, titles, and populations of the CMSA's and PMSA's.

Procedural Steps for New England

This statement provides an illustrative outline of the specific steps that will be followed in the process of designating and defining each individual metropolitan statistical area (MSA), primary metropolitan statistical area (PMSA), and consolidated metropolitan statistical area (CMSA) in New England. It should read in conjunction with the official standards; the relevant section of the standards is specified at the start of each step. The procedural steps are intended to cover all significant aspects of the definition process. Hence, this statement is of necessity complex. Details of some of the procedures will probably be altered at the time the actual redefinition process takes place.

The New England steps are numbered NE 1 through NE 35 to distinguish them from the preceding group of steps. Likewise, the lists called for by the steps from time to time are numbered beginning with NE 1.

The definiting of metropolitan statistical areas in New England requires outline maps showing each city and town, at a scale sufficiently large to permit posting one or two data items within each area. These maps are numbered in order of preparation, beginning with NE 1.

The term "place" is sometimes used in the steps as an alternative to "city or town," and always refers to the building blocks used for defining metropolitan statistical areas in these States.

When a complete review of all metropolitan statistical area definitions is made after the release of 1980 commuting data, unusual situations may arise which are not covered by these procedures. If so, they will be considered on an individual basis by the Federal Committee on Standard Metropolitan Statistical Areas (SMSA's) in order to develop a solution consistent with the general aims of the MSA standards.

Steps	*Comments*
CENTRAL CORES	
NE 1. (Section 12A) Each New England UA on the UA LIST must be examined and a central core determined; first, Zone A must be defined. An outline map showing each city and town (Map NE 1) is necessary. Identify the UA's that are contiguous to others (UA LIST section 3) and treat each group of contiguous UA's as a unit for steps NE 1 and NE	Because many New England MSA's are closely spaced, some places will qualify for inclusion in two different MSA's. It is desirable for the definition of all New England MSA's to be done concurrently.

Steps	*Comments*
2. Determine the largest city in each UA or group of contiguous UA's (UA LIST item 2); mark the city "CC" on Map NE 1.	
NE 2. (Section 12A) In each UA or group of contiguous UA's, identify each other place with at least 50% of its population in the UA or group (TOWN LIST item 4). For each UA or group, locate these places on Map NE 1, and mark the *outer boundary* of their combined territory; this represents the maximum possible extent of the central core for that UA or group.	A place with less than 50% of its population in the UA or group, but surrounded by places qualifying for that UA or group, is eligible for inclusion in the central core under this step.
NE 3. (Section 12A(2)) Determine which places within the outer boundary (step NE 2) qualify as central cities by reviewing the CITY LIST and checking the CCQ codes (item 8). Each city coded H or J is a central city. A given city coded K is also a central city if the UA's largest city (step NE 1) has less than 75,000 population and no more than three times the given city's population. Prepare a list (List NE 1) of the qualified central cities of each UA or group.	If an interim MSA has no H or J cities, any city coded K in item 8 is a central city.
NE 4. (Section 12A(2)) Use TOWN FLOWS to check the percent of workers commuting from each of these central cities to the UA's largest city. If this is at least 15%, mark the city "CC" on Map NE 1. If not, check the reverse commuting—*from* the largest city *to* the subject central city—to determine whether it amounts to at least 15% of the subject central city's workers, or if the two-way commuting flow is at least 20% of the subject central city's workers. If either requirement is met, mark the city "CC" on Map NE 1; if not, leave it unmarked.	
NE 5. (Section 12A(3)) Use TOWN FLOWS to check each other place within the outer boundary for the percent commuting to the combined places marked "CC" on Map NE 1. If this is at least 15%, mark the place "A" on Map NE 1. If not, check to see if either reverse or two-way commuting (see step NE 4) is sufficient to qualify, and if so, mark the place "A" on Map NE 1; otherwise leave the place unmarked. This step completes the identification of Zone A, which consists of all places that have been marked "CC" or "A".	In a UA containing more than one central city, the commuting flows from a given place to the various central cities need to be checked only enough to determine that the 15% level is met. A place within the outer boundary may qualify for Zone A without being contiguous with any other Zone A place. Any central city (step NE 3) that was checked but did not qualify as "CC" in step NE 4 must be checked again for this step.
NE 6. (Section 12B) To define Zone B of the central core, use TOWN FLOWS to check or	

recheck each place within the outer boundary but not already marked as "CC" or "A", to see if it has at least 15% commuting to Zone A. If it does, mark the place "B" on Map NE 1; if not, check to see whether either reverse or two-way commuting (see step NE 4) is sufficient to qualify. If so, mark the place "B" on Map NE 1; if not, mark the place "C".

NE 7. (Section 12C) Determine the final boundaries of the central core according to Section 12C, following its specifications relative to discontinuous or surrounded places.

The central core often will include all places within the outer boundary—that is, all those places with at least 50% of their population in the UA or group of contiguous UA's. Exceptions occur particularly in cases of groups of contiguous UA's. If a contiguous UA contains a central city that has not qualified for Zone A under steps NE 1 through NE 7, this central city must be checked to determine a separate Zone A and central core, under steps NE 1 through NE 7.

(Section 12D) If a place qualifies for more than one central core, it is assigned to the area to which commuting is greatest, unless the relevant commuting percentages are within 5 points of each other, in which case local opinion as to the most appropriate assignment is also consulted through the congressional delegation.

Map NE 1 should be retained as a record of the makeup of Zones A and B.

OUTLYING CITIES AND TOWNS

NE 8. (Section 13A) On a single outline map (Map NE 2), mark the boundaries of each New England central core in a distinctive color (other than black). Using TOWN LIST item 3, identify and mark on the map places with a population density of less than 60 per square mile (mark "X" in black) and of 60 to 100 (mark "Y" in black and circle it).

The same color should not be used for nearby central cores. Places in counties located more than 30 miles from any central core generally need not be checked for population density. The "Y" designation should be positioned in such a way as to permit commuting percentages to be posted for the same place in step NE 9.

NE 9. (Section 13A) For each contiguous place not marked "X", use TOWN FLOWS to check commuting flows to or from the nearest central core, and to or from other nearby central cores if any. Using the distinctive color for that core, post on Map NE 2 the percent commuting to that central core, and the percent represented by commuters from that central core to the place. Continue the procedure until every contiguous town is either marked "X" (step NE 8) or has been determined to lack a significant level of commuting to any central core.

Posting the commuting percentages on the map provides a convenient means of determining the possible extent of each MSA and the contiguous places needing to be checked; it also identifies places with qualifying commuting in two or more directions. To avoid crowding, only the whole percentages need to be posted in most cases.

A "significant" level of commuting occurs if either the percentage commuting *to* the central core or the percentage commuting *from* it amount to at least 5%, since a total of the two percentages of 20% (for example, 14% commuting to, and 6% commuting from, the central core) would be sufficient to qualify the place.

Steps	*Comments*
NE 10. (Section 13C) The TOWN FLOWS must also be checked to determine whether there is a qualifying commuting flow between the place and any city or town not included in the central core and not qualified for inclusion in any MSA. Treat any such city or town as an additional central core, assign it a distinctive color, and post flows to and from it on Map NE 2.	If in following steps NE 8 and 9 a place being checked has qualifying commuting to a city or town outside any central core, that city or town should immediately be checked to determine whether or not it qualifies for inclusion in any MSA. If the city or town does not qualify for inclusion, a place's commuting flows with it may disqualify that place from inclusion in any MSA, as provided by Section 13C. If the city or town does qualify for inclusion in any MSA (but not for its central core), any commuting flows with it are ignored. Map NE 2 should be retained as a record of the percent commuting from (and to) outlying places.
NE 11. (Section 13) On a new outline map (Map NE 3) copy the boundaries of each central core from Map NE 2, retaining the same distinguishing colors used there. Check each contiguous place on Map NE 2 to determine whether it has sufficient density and commuting to qualify for any MSA under Section 13A. Be sure that any place that is marked Y on Map NE 2 (population density between 60 and 100) meets Section 13A(1). (a) If a place was marked "X" on Map NE 2, mark it "X" on Map NE 3. (b) If a place not marked "X" has too little commuting to qualify to any central core, mark it "Z" in black on Map NE 3. (c) If a place qualifies through commuting to one central core or nonmetropolitan place only, mark it "Q" on Map NE 3, using the color of that central core or nonmetropolitan place. (d) If a place qualifies through commuting to more than one central core and/or to a nonmetropolitan place, but the leading destination's commuting percentage is at least 5 points ahead of the next highest, mark the place "M" in the color of the leading destination. (e) If a place has qualifying commuting to two or more central cores and/or nonmetropolitan places separated by less than 5 percentage points, mark the place with an "S" for each such destination. Maintain a list (List NE 2) of all such places; local opinion, obtained through the congressional delegation, will also be considered before they are assigned to any MSA.	Qualification of any MSA is subject to the MSA meeting the minimum size of 75,000 required by Section 14A. It is also useful to mark on Map NE 3 any nonmetropolitan city or town that is a significant commuting destination.

Steps	*Comments*
Each interim MSA consists of a central core, any places coded "Q" or "M" in the color of that core, and any places coded "S" in that color that it was decided to assign to that MSA. Also, a place that has not qualified but that is completely surrounded by places qualifying for a given MSA is included in that MSA.	List NE 2 should be retained as a record of places with approximately equal qualifying commuting to two or more central cores.

QUALIFICATION AS AN MSA

NE 12. (Section 14A) For each interim MSA defined by step NE 11, prepare a list (List NE 3) of all its cities and towns with their total population and urban population (TOWN LIST items 1 and 2). Total these for the interim MSA; if the total is less than 75,000 and the MSA contains no city of at least 50,000, the area is disqualified from further consideration unless retained by Section 14A, footnote 10 (see next step).	If an MSA is disqualified through having less than 75,000 population, any places coded "M" or "S" and assigned to it in step NE 11 must be reviewed and reassigned.
NE 13. (Section 14A) To determine whether any interim New England MSA's are retained by footnote 10, compare the full list of interim New England areas with the list of currently defined SMSA's in New England, as specified in step 11. Then mark the boundary of each interim MSA on Map NE 3.	If an MSA that lacks a total population of at least 75,000 is retained by this step, it is not entitled to add any cities or towns but is restricted to its current definition. Footnote 2 provides that any existing SMSA that was duly designated under criteria in effect at the time of designation will not be disqualified on the basis of lacking a UA of at least 50,000. If such a UA is identified in New England, it would be necessary to review it under steps NE 1 through 11 to determine whether its current definition was correct.

CENTRAL CITIES

NE 14. (Section 14B) Determine the central cities of each interim New England MSA by updating List NE 1 to include any additional central cities that are included in the MSA (see step NE 3), although outside the outer boundary determined in step NE 2.	List NE 1 should be retained as a record of each area's central cities.

CONSOLIDATIONS

NE 15. (Section 14C) To determine which interim MSA's qualify to be consolidated, check Map NE 3 and list each pair of interim MSA's that are contiguous (that is, have a common boundary at any point). Use TOWN FLOWS to determine the commuting interchange between the members of each pair, and calculate the percentage this interchange	An interim MSA that is contiguous to an MSA outside New England should be included in the list of pairs. Even where several interim MSA's adjoin one another, each pair of contiguous interim MSA's should be listed separately. In each pair, the smaller interim MSA is the one with

is of the resident workers with place of work reported in the smaller interim MSA of the pair (totaled from TOWN LIST item 5).

the smaller total of resident workers with place of work reported.

NE 16. (Section 14C) Follow the procedure of steps 14, 15, and 16 to determine consolidations under the provisions of Section 5 (see List NE 3 for total population and total urban population). Revise Map NE 3 and List NE 3 to show the consolidations.

The comments on steps 14 and 15 and the first comment on step 16 are also applicable to New England.

LEVELS

NE 17. (Section 14D) Determine the level (size category) for each interim area according to the categories specified in Section 7A and add these to List NE 3. Interim MSA's with less than 1 million population (levels B, C, and D) receive final qualification as MSA's by this stp. For interim MSA's of 1 million or more, continue with step NE 19.

List NE 3 and Map NE 3 should be retained as records of the composition and boundaries of each MSA in levels B, C, and D and each interim MSA in level A.

TITLES of MSA's

NE 18. (Section 14E) To determine the title of each New England MSA in levels B, C, and D, use Lists NE 1 and NE 3 and follow the procedures of steps 20, 21, and 22. Prepare a list (List NE 4) of the final MSA titles. This step completes the definition and titling of New England MSA's other than those in Level A.

The second and third comments on step 21 and the first comment on step 22 are also applicable to New England MSA's.

List NE 4 should be retained as a record of titles of New England MSA's of less than 1 million.

PRIMARY MSA's: COMPONENT CENTRAL CORES

NE 19. (Section 15B(3)) Section 15 provides general guidelines for recognizing primary metropolitan statistical areas (PMSA's) in New England. The specific statistical guidelines under which this is done (see Section 15C) appear in steps NE 19 through NE 35. First, *component central cores* must be defined, following the general guidelines of Sections 15B(2) and (3). To begin the definition of component central cores, prepare three outline maps (Maps NE 4, NE 5, and NE 6) for each New England Level A MSA. On each map, copy the MSA boundary from Map NE 3, and the *outer boundary* or boundaries from Map NE 1. Mark the Level A MSA's largest central city "LCC" in red.

This and the following steps apply to the New England portion of any Level A MSA, even if that MSA is primarily located outside of New England.

A solid black line may be used on Maps NE 4, NE 5, and NE 6 for the MSA boundary, and a dashed black line for the "outer boundary."

If the final Level A MSA boundary included all or a portion of a UA not contiguous with the main UA, Map NE 1 will show a separate outer boundary for that UA, consisting of the places with at least 50% of their population in that UA; see step NE 7, first comment.

NE 20. (Section 15B(2)) Check CITY LIST item 8 to determine the cities coded H, J, or K that

Double-check by comparing the list of component core cities with the central cities identified in step NE

Steps	*Comments*
are located within the Level A MSA outer boundary(ies), other than MSA's largest central city (step NE 19). These cities are termed component core cities. Label each component core city "CCC" on both Maps NE 4 and NE 5, using a distinctive color (other than red) for each one.	3, adding any cities coded J that were excluded in step NE 3 and omitting the MSA's largest central city. Any central cities of the Level A MSA (List NE 1) located beyond the outer boundary(ies)—that is, not included in any UA—are ineligible as component core cities.
NE 21. (Section 15B(3)) For each city or town within the outer boundary(ies), including each component core city, use TOWN FLOWS to determine the commuting interchange percentage with the Level A MSA's largest central city (LCC), and post this on Map NE 4 in red. Also, for each of the component core cities marked on Map NE 4, check each place that is directly contiguous to the city (other than another component core city) and determine its commuting interchange percentage with that city; post this percentage on Map NE 4, using the appropriate color for that component core city.	In this step, each component core city should be treated separately even when two such cities are directly contiguous, unless it has already been definitely determined through the congressional delegation that local opinion supports combining them as a single area (see step NE 26). If that determination has been made, the two component core cities can be treated together starting with this step.
NE 22. (Section 15B(3)) For each component core city, the component central core includes any contiguous city or town that (1) is within the outer boundary; (2) has at least 5% of its employed workers working in the component core city together with other places already qualified for the component central core; and (3) has commuting interchange with the component core city, together with other cities and towns already qualified for the component central core by this step, which is (a) at least 20%; (b) greater than with any other component central core or with the largest city of the Level A metropolitan statistical area. For each component core city, prepare a worksheet (List NE 5) to check the qualification of neighboring places for the component central core. Attachment 1 shows the format of such a worksheet for an imaginary component core city in the Boston Level A MSA. On each worksheet, list only places within the outer boundary that includes this component core city, and do not list any other component core cities.	
(a) Begin List NE 5 by listing the contiguous place that shows the highest commuting interchange with the component core city (Map NE 4); post this interchange percentage in column 3A, and the interchange percentage with the LCC (Map NE 4) in column 4.	See Attachment 1 example line for North Cabots Falls.

Steps	*Comments*
(b) Using TOWN FLOWS, determine the percentage of the place's workers who work in the component core city and post it in column2A. If column 2A is at least 5%, check off the percentage.	Reverse commuting (*from* the component core city *to* the place) cannot be used to meet this requirement.
(c) If column 3A is at least 20%, *and* is greater than column 4, check off the percentage.	
(d) If both columns 2A and 3A are checked, the place qualifies for the component central core; post "A" in column 5, and also on Map NE 5 using the color appropriate for this component core city.	
(e) Next, list the place contiguous to the component core city that shows the next highest interchange with it. To reach the 5% level in column 2, this place may, if necessary, add in the percentage of its resident workers who work in any place already qualified; the resulting total percentage is posted in column 2B. Likewise, to reach the required level in column 3, the place may add in its interchange percentage with any place already qualified; the resulting total percentage is posted in column 3B.	See Attachment 1 example line for Aylesbury. In the example, Aylesbury reaches the 5% level by including its commuting to North Cabots Falls, and also reaches the 20% interchange level in column 3 by including its interchange with North Cabots Falls.
(f) Continue the procedure until each place within the outer boundary and directly contiguous to the component core city has been checked. Then continue with each other contiguous place within the outer boundary (except other component core cities) to determine whether it meets the 5% requirement in column 2A or 2B.	
(1) If a place does not meet this requirement, mark it "X" in column 5 and on Map NE 5.	
(2) If a place meets the column 2/2A requirement of 5% and reaches the 20% level in column 3/3A, with a percentage exceeding the value in column 4, mark it "A" in column 5 and on Map 5.	
(g) Continue until all qualifying contiguous places outward from the component core city and within the outer boundary have been checked.	Around any one component core city, the process continues until the component core city has been surrounded either by the outer boundary, places coded "X" in its color, or by other component core cities.
NE 23. (Section 15B(3)) After List NE 5 has been completed for every component core city, check Map NE 5 for places marked "A."	

Steps	*Comments*
(a) If a place is marked with one or more "X" 's and not with any "A" 's, mark it "X" on Map NE 6 in black. These places do not qualify for any component central core.	
(b) If a place is marked with an "A", but only a single "A", copy the "A" onto Map NE 6, using the appropriate color.	If a place is marked with any "A" 's, any "X" it may also carry can be ignored.
(c) List all places (List NE 6) that are marked "A" in two or more colors (that is, qualified for two or more component central cores). Copy onto List NE 6 the final commuting interchange percentages from column 3/3A of List NE 5.	If a place qualifies for two component central cores, it may be necessary to extend each List NE 5 on which it appears to include its interchange with *all* previously qualified places (not just enough to reach the 20% level) before determining whether the two interchange percentages are within 5 points of each other.
(d) If a place has interchange with one area that is more than 5 points higher than with any other, mark it "M" on the list and on Map NE 6.	That is, two "A"'s separated by 5 points or less.
(e) If a place does not have interchange with any area that is more than 5 points greater than others of at least 20%, mark it "S" on the list, and or Map NE 6 in pencil. Local opinion, obtained through the congressional delegation, will be considered before these places are assigned to any component central core.	If a given place qualifies to one component central core through including commuting to (or interchange with) a second place that could qualify for that component central core, and a decision is made based on local opinion to assign the second place to another component central core, local opinion will also be obtained before assigning the given place. List NE 5 and Maps NE 4 and NE 5 should be retained as a record of the commuting basis on which places qualified for each component central core. List NE 6 should be retained as a record of component central core assignments on which local opinion was consulted.
NE 24. (Section 15B(3)) After local opinion has been consulted to determine the assignment of places coded "S", mark Map NE 6 with "S," again in the color of the component central core to which assignment is made, and use the same color to draw the boundary of each interim component central core, comprising the component core city and the places marked "A," "M," or "S" in its color.	
NE 25. (Section 15B(3)) For each interim component central core, prepare a list (List NE 7) of the places included, with their populations and resident workers (TOWN LIST items 1 and 5); total these for the interim component central core. For each place, use TOWN FLOWS to determine the number of resident workers who work within the interim component central core. Total this item for the component central core and	If a component central core is disqualified by this step, any places within it marked "M" or "S" on Map NE 6 must be reviewed and reassigned.

Steps	*Comments*
determine whether it amounts to at least 60% of the area's resident employed workers. If it does not, the interim component central core fails to qualify and is dropped from further consideration. Correct Map NE 6 and List NE 7 to reflect any changes made by this step.	
NE 26. (Section 15B(3)) Contiguous component central cores defined under steps NE 19 through NE 25 may be merged as a single component central core provided (1) steps NE 21 through NE 25 would either (a) qualify the component core city of one component central core for inclusion in the other component central core, or (b) qualify one component central core as a whole for inclusion in the other central core; *and* (2) there is substantial local support for treating the two as a single core. To determine whether any contiguous component central cores qualify to be merged, check Map NE 6 and list (List NE 8) each pair of contiguous interim component central cores. Follow the procedure already outlined to determine whether the merger requirements are met, either through the component core city of one core qualifying for inclusion in the other core, or through one core as a whole qualifying for inclusion in the other. If the statistical requirements are met, local opinion must be obtained through the congressional delegation before determining whether the two cores should be merged.	Merger of two component central cores, by enlarging the area with respect to which commuting and interchange are measured, may result in qualifying additional places under the procedures of step NE 22. List NE 8 should be retained as a record of contiguous component central cores, indicating which were merged.
NE 27. (Section 15B(3)) After local opinion has been considered and any mergers of cores determined, revise List NE 7 and Map NE 6. For each core on which local opinion has not already been obtained, it will now be solicited to confirm that the interim core defined by the criteria has substantial local support. After local opinion has been determined, prepare a new map (Map NE 7) of each Level A MSA showing the MSA boundary in black, the boundary of each final component central core in its distinctive color, and the LCC in red.	Map NE 6 should be retained as a record of the basis for the makeup of each component central core.
PRIMARY MSA's: OTHER PLACES	
NE 28. (Section 15B) In addition to its component central core, a primary metropolitan statistical area may include other places included in the Level A metropolitan statistical area if,	If this procedure would result in a place being assigned to a primary metropolitan statistical area with which it is not physically contiguous, the place is given a special review and is normally assigned to the

Steps	*Comments*
for each such place (1) at least 15% of its resident employed workers work in the component central core, and (2) the commuting interchange with the component central core is greater than with the largest city of the Level A metropolitan statistical area. If a place qualifies on the basis of at least 15% commuting to two different component central cores, it is assigned to the primary area to whose component central core commuting is greatest, unless the relevant commuting percentages are within 5 points of each other, in which case local opinion as to the most appropriate assignment will also be considered. To determine which places around each component central core qualify for the primary metropolitan statistical area, check each place on Map NE 7 that is within the Level A MSA but outside any component central core. Using Map NE 4 or TOWN FLOWS, determine the commuting interchange percentage of the place with the LCC and post it on Map NE 7 in red. In addition, check each place for commuting to the individual component central cores; if the percent of workers commuting from the place to a core is at least 15, post the percent on Map 7 in the appropriate color; if the percent is less than 15, post "X" in that color.	contiguous area to whose component central core it has the greatest commuting. For many places, the interchange percentage with the LCC can be copied from Map NE 4. Neither reverse commuting (*from* the core *to* the place) nor commuting interchange are considered for this step.
Continue until each component central core is surrounded either by places marked "X", another component central core, the LCC, or the MSA boundary.	
NE 29. (Section 15B) On a new map (Map NE 8), copy from Map NE 7 the MSA boundary and each component central core boundary in the appropriate color. Check each place on Map NE 7 that is inside the MSA boundary but outside any component central core.	
(a) If a place does not have at least 15% commuting to any component central core or 15% interchange with the LCC, mark it "X" on Map NE 8.	
(b) If a place has at least 15% interchange with the LCC, and lacks at least 15% commuting to any component central core, mark it "L" on Map NE 8.	
(c) If a place has at least 15% commuting to one component central core, and this *exceeds* its interchange percentage with the LCC, mark it "Q" on Map NE 8 in the proper color.	Since the place has qualifying commuting to a core that is greater than its entire interchange with the LCC, there is no need to ascertain how much commuting it receives from that core.

Steps	*Comments*
(d) If a place has at least 15% commuting to one and only one component central core, but this is *less than* the commuting interchange with the LCC, check TOWN FLOWS to determine the commuting *from* the core *to* the place and thus the interchange percentage of the place with the core. If this now exceeds the interchange with the LCC, mark the place "Q" on Map NE 8 in the proper color. If the interchange with the LCC is still the greater, mark the place "L" on Map NE 8 in red.	
(e) If a place has at least 15% commuting to two different component central cores and one is at least 5 points higher than the other, follow the procedure of step NE 29(d) to determine whether to mark it "Q" or "L."	
(f) If a place has at least 15% commuting to two different component central cores, with the percentages separated by no more than 5 points, follow the procedure of step NE 29(d) to determine whether each core also has a higher interchange with the place than the LCC. If each core does have a higher interchange, mark the place "S" in pencil on Map NE 8 and list it (List NE 9) for consultation with local opinion. If only one of the competing interchanges is greater than that with the LCC, mark the place "Q" in the color of the appropriate component central core.	
Local opinion will be obtained through the congressional delegation before determining the assignment of places marked "S." When this is settled, correct Map NE 7 by changing each "S" to the color of the component central core to which the place has been assigned.	Every place outside a core on Map NE 8 should have been marked with a letter ("Q," "L," or "S") by the end of this step. Map NE 7 and List NE 9 should be retained as records of the basis for including outlying places in each PMSA.
NE 30. (Section 15B) On Map NE 8, draw an interim PMSA boundary around each component central core, including any places marked "Q" or "S" in its color. Assign the places marked "L" to an interim PMSA that includes the LCC. Check the map for any places not physically contiguous to the rest of their interim PMSA, and assign each such place to the contiguous PMSA with whose component central core it has the greatest commuting (see step NE 28, first comment).	An interim PMSA including the LCC is needed to meet Section 15D. Non-contiguous places, if any occur, are most likely to have been marked "L" on Map NE 8.

Steps	*Comments*
NE 31. (Section 15B(1)) To determine whether the interim PMSA's total population is sufficient to qualify, revise List NE 7 to include the additional places in each interim PMSA, with their populations. If the interim PMSA contains at least two places, total its population; if this is at least 75,000, the interim area qualifies as a PMSA.	An interim PMSA that consists of only a single city or town is not eligible for recognition as a PMSA. If an interim PMSA is disqualified through having a population of less than 75,000, the places it includes must be reviewed and if necessary reassigned. The places that comprise each final PMSA under this step will always form a contiguous group because of Section 15D, footnote 11.
NE 32. (Section 15D) In any Level A MSA in which a PMSA qualifies, an additional PMSA including the LCC is also constituted (consisting of the LCC and the places marked "L" in step NE 30). Correct Map NE 8 and List NE 7 to show all qualifying PMSA's. The Level A MSA itself is designated a consolidated metropolitan statistical area (CMSA). Prepare a list (List NE 10) of the CMSA's and their constituent PMSA's, with the total population of each CMSA and PMSA. If a Level A MSA has no PMSA qualifying under this step, it is designated an MSA; its title is determined following the procedures of steps 20, 21, and 22.	Map NE 8 and List NE 7 should be retained as records of the makeup of each PMSA.
LEVELS AND TITLES OF PMSA's	
NE 33. (Section 16A) Assign each PMSA to its proper level based on total population (List NE 10), following the categories of Section 7A.	
NE 34. (Section 16B) Using List NE 1, assign each central city of the consolidated (Level A) MSA to the proper PMSA. Follow the procedure of steps 20 and 21 to determine the final title of each PMSA. Add the titles to List NE 10.	The central city(ies) in a PMSA are not independently determined but consist of those central cities already determined for the CMSA which are located in the PMSA. Names of New England counties are not used in PMSA titles.
TITLES OF CMSA's	
NE 35. (Section 16C) For each New England CMSA, determine a tentative title following Section 11B. Local opinion, ascertained through the congressional delegation, is always consulted before determining a final CMSA title. Add the titles to List NE 10.	The first-named cities in CMSA titles must be checked against existing consolidated area (SCSA) titles to ensure conformance with Section 11B(1), second sentence. Names of New England counties are not used in CMSA titles. List NE 10 should be retained as a record of the titles, composition and population of each PMSA and CMSA in New England.
This completes the steps for defining and titling MSA's, PMSA's, and CMSA's in the New England States.	

Attachment 1
List NE 5

NEW ENGLAND COMPONENT
CENTRAL CORE WORKSHEET

Component Core City: (CCC) CABOTS FALLS — Level A MSA: BOSTON

Place	Percent working in— CCC	Percent working in— CCC and additional places	Percent commuting interchange with— CCC	Percent commuting interchange with— CCC and additional places	Percent commuting interchange with LCC: Boston	
Col. 1	Col. 2A	Col. 2B	Col. 3A	Col. 3B	Col. 4	Col. 5
North Cabots Falls	*29.07*✓		*37.34*✓		*7.12*	*A*
Aylesbury	*4.48*		*9.08*		*4.03*	
N. Cabots Falls	*10.03*	*14.51*✓	*12.12*	*21.20*✓		*A*
Fleuchersville	*3.14*		*9.01*		*4.27*	
N. Cabots Falls	*5.06*	*8.20*✓	*7.04*			
Aylesbury	*3.18*		*3.36*	*19.41*		*X*
Quinkannock	*2.03*		*3.34*		*2.11*	
N. Cabots Falls	*0.44*		*0.69*			
Aylesbury	*0.22*		*0.31*			*X*

Potential Consolidated Metropolitan Statistical Areas (CMSA's) and Primary Metropolitan Statistical Areas (PMSA's)

This list of areas that could probably qualify as CMSA's and PMSA's under the new standards has been prepared for illustrative purposes from available information. It is based on 1970 commuting data and 1980 estimated population, population density, and percent urban (extrapolated using 1977 population estimates). After 1980 commuting data become available, the situation of some areas on the list will undoubtedly change, and some additional areas will qualify.

CMSA's.—The potential consolidated areas marked with an asterisk (*) generally correspond to an existing standard consolidated statistical area (SCSA), although their exact makeup might differ. The unmarked CMSA's do not correspond to any existing SCSA but generally correspond to an existing SMSA. A few additional SCSA's will probably be designated in early 1981, reflecting the establishment of additional SMSA's on the basis of final 1980 census counts; this table does not include any such areas.

CMSA Titles.—The potential CMSA's are identified in the list by the name of their largest city; the list does not reflect the additional names that might be included in the CMSA title following the provisions of Section 11 of the official standards. Local opinion will be sought before making a final determination of the title of a CMSA.

PMSA's.—The following codes are used to distinguish 3 groups of potential PMSA's:

(S) Potential PMSA with the same or substantially the same makeup as an existing SMSA.
(M) Potential PMSA with the same or a similar title as an existing SMSA, but with a somewhat different makeup.
(P) Potential PMSA with no corresponding existing SMSA.

The official standards specify that designation as a PMSA will be made only if local opinion supports separate recognition of the area for statistical purposes. The detailed procedures supplement to the

standards also provides that under specified circumstances local opinion may be consulted before determining the assignment of a county (or a place in New England) having approximately equal commuting ties to two different potential PMSA's. Therefore some of the areas listed may not be given separate recognition, or may have a somewhat different makeup, apart from various changes that will undoubtedly occur as a result of reviewing 1980 commuting data.

PMSA Titles.—The titles in the table are provided for purposes of illustration. Final titles under Section 10 of the official standards will not be determined until after 1980 commuting data become available to permit identification of central cities.

Consolidated MSA	*Primary MSA's*
Boston, MA-NH*	Boston, MA (M) Brockton, MA (S) Framingham, MA (P) Lawrence-Haverhill, MA-NH (S) Lowell, MA-NH (S) Lynn-Salem, MA (P)
Buffalo, NY	Buffalo, NY (M) Niagara, NY (P)
Chicago, IL-IN-WI*	Aurora-Elgin, IL (P) Chicago, IL (M) Gary-Hammond, IN (S) Joliet, IL (P) Kenosha, WI (S) Waukegan, IL (P)
Cincinnati, OH-KY-IN*	Cincinnati, OH-KY-IN (S) Hamilton-Middletown, OH (S)
Cleveland, OH*	Akron, OH (S) Cleveland, OH (S) Lorain-Elyria, OH (S)
Dallas, TX	Dallas, TX (M) Fort Worth, TX (P)
Dayton, OH	Dayton, OH (S) Springfield, OH (S)
Denver, CO	Boulder, CO (P) Denver, CO (M)
Detroit, MI*	Ann Arbor, MI (S) Detroit, MI (S)
Hartford, CT	Bristol, CT (S) Hartford, CT (M) Middletown, CT (P) New Britain, CT (S)
Houston, TX*	Brazoria, TX (P) Galveston-Texas City, TX (S) Houston, TX (M)
Indianapolis, IN	Anderson, IN (S) Indianapolis, IN (S)

Consolidated MSA	*Primary MSA's*
Los Angeles, CA*	Anaheim-Santa Ana, CA (S) Los Angeles-Long Beach, CA (S) Oxnard-Ventura, CA (S) Riverside-San Bernardino, CA (S)
Miami, FL*	Fort Lauderdale, FL (S) Miami, FL (S)
Milwaukee, WI*	Milwaukee, WI (S) Racine, WI (S)
Minneapolis, MN	Minneapolis, MN (M) St. Paul, MN (P)
New York, NY-NJ-CT*	Bergen, NJ (P) Jersey City, NJ (S) Middlesex-Somerset-Hunterdon, NJ (M) Monmouth-Ocean, NJ (M) Nassau-Suffolk, NY (S) Newark, NJ (S) New York, NY (M) Norwalk, CT (S) Paterson, NJ (S) Stamford, CT (S) Westchester-Rockland-Putnam, NY (P)
Philadelphia, PA-NJ-DE*	Camden-Burlington-Gloucester, NJ (P) Montgomery, PA (P) Philadelphia, PA (M) Trenton, NJ (S) Wilmington, DE-NJ (S)
Pittsburgh, PA	Beaver, PA (P) Pittsburgh, PA (M)
Portland, OR-WA	Portland, OR (M) Vancouver, WA (P)
San Francisco, CA*	Oakland, CA (P) San Francisco, CA (M) San Jose, CA (S) Santa Rosa, CA (S) Vallejo-Fairfield-Napa, CA (S)
Seattle, WA*	Seattle, WA (S) Tacoma, WA (S)
Tampa, FL	St. Petersburg, FL (P) Tampa, FL (M)

Potential Changes in New England Metropolitan Statistical Areas

This list of the changes that may occur as a result of the new standards has been prepared for illustrative purposes from available information. It is based on 1970 data on commuting, the 1970 definitions of urbanized areas, and 1980 estimated population density (extrapolated using 1977 population estimates). After 1980 urbanized areas are defined and 1980 commuting data become available, some additional cities and towns will undoubtedly qualify to be added to MSA's. Also, the situation of some places listed below for deletions or transfers will probably change at that time because of changes in their commuting patterns. The places indicated by (S) had approximately equal qualifying commuting ties in 1970 to two different central cores, or to a central core and a nonmetropolitan place (see separate section on these places). All places listed are towns unless designated as cities.

Additions

Boston Consolidated MSA, MA-NH	Additions in MA: Bolton, Carver, Dunstable, Essex, Gloucester city, Groton, Hopedale, Hopkinton, Hudson, Ipswich, Littleton, Mansfield, Marlborough city, Maynard, Mendon, Middleborough, Milford, Newbury, Newburyport city, Plymouth, Plympton, Rockport, Rowley, Southborough, Stow
	Additions in NH: Danville, East Kingston, Sandown
Bridgeport, CT	Ansonia city, Oxford, Seymour
Fitchburg-Leominister, MA	Ashburnham, Ashby
Hartford-New Britain-Bristol Consolidated MSA, CT	East Haddam, Middlefield (S), Middletown city
Lewiston-Auburn, ME	Greene, Mechanic Falls, Poland, Sabattus (Webster)
Manchester, NH	Auburn, Candia, Raymond
Nashua, NH	Hollis, Litchfield
New Bedford, MA	Rochester
New Haven-Meriden, CT	Killingworth
New London-Norwich, CT-RI	Additions in CT: North Stonington, Salem
New York Consolidated MSA, NY-NJ-CT	Additions in CT: Ridgefield, Sherman
Pittsfield, MA	Hinsdale, Richmond, West Stockbridge
Portland, ME	Buxton, Hollis, North Yarmouth, Standish
Providence-Pawtucket, RI-MA	Additions in RI: Exeter, Foster, Glocester
Springfield-Chicopee, MA	Huntington, Montgomery, Russell
Waterbury, CT	Bethlehem
Worcester, MA	Douglas, Princeton, Rutland

Deletions

A few cities and towns would no longer qualify for inclusion in a metropolitan statistical area, based on 1970 commuting data to the central core as redefined. In many cases, 1980 data will probably show an increase in commuting such that the place will continue to qualify.

Fall River, MA-RI	Portsmouth, RI (see note below under "Other Places")

Fitchburg-Leominster, MA	Shirley
Manchester, NH	Allenstown (S), Derry, Pembroke (see note below under "Other Places")
New Bedford, MA	Lakeville
New London-Norwich, CT-RI	Old Saybrook, CT; Hopkinton, RI
Pittsfield, MA	Stockbridge
Portland, ME	Freeport, Saco city
Providence-Pawtucket, RI-MA	Jamestown, RI, (S)
Springfield-Chicopee, MA	Hadley, Warren
Worcester, MA	Berlin, Webster

Transfers

Based on 1970 commuting data and the redefined central cores, several towns would be transferred from one MSA to another. In some cases, however, 1980 commuting data may confirm the present MSA affiliation.

Town	*From*	*To*
Cheshire, CT	Waterbury	New Haven-Meriden
Redding, CT	Danbury	New York Consolidated MSA
Somers, CT(S)	Springfield-Chicopee	Hartford-New Britain-Bristol Consolidated MSA
Upton, MA	Worcester	Boston Consolidated MSA

Places with Approximately Equal Commuting Ties to Two Destinations

Based on 1970 commuting data, the following places would be subject to a consultation with local opinion before being assigned to a metropolitan statistical area (see Sections 13B and 13C of the official standards). Some of these places are included in the preceding lists, which indicate how they would be assigned if only their strongest commuting ties were recognized. The makeup of this list will probably change after 1980 commuting data become available.

Allenstown, NH	Now part of the Manchester SMSA; had nearly equal commuting ties with Concord city.
Charlton, MA	Now part of the Worcester SMSA; had nearly equal commuting ties with Southbridge town.
Durham, CT	Now nonmetropolitan; had qualifying commuting ties with central core of the potential New Haven-Meriden MSA, but also had qualifying ties with Middletown city, which is now nonmetropolitan. The status of Durham under the new standards will depend mainly on whether Middletown qualifies for inclusion in the central core of the potential Hartford-New Britain-Bristol Consolidated MSA.
Freetown, MA	Now part of the New Bedford SMSA; had nearly equal commuting ties with the central core of the Fall River SMSA.
Jamestown, RI	Now part of the Providence-Warwick-Pawtucket

	SMSA; had slightly greater commuting ties with Newport city.
Middlefield, CT	Now nonmetropolitan; had qualifying commuting ties with the central core of the potential Hartford-New Britain-Bristol Consolidated MSA, and nearly equal ties with the central core of the potential New Haven-Meriden MSA.
Old Orchard Beach, ME	Now part of the Portland SMSA; had nearly equal commuting ties with Biddeford city.
Somers, CT	Now part of the Springfield-Chicopee-Holyoke SMSA; had slightly greater commuting ties with the central core of the potential Hartford-New Britain-Bristol Consolidated MSA.

Other Places Mentioned in Criteria Proposals of November 1978 (Appendix D)

Under the official MSA standards pubished in January 1980, the situation of these places would be as described.

Harwinton, CT	Now nonmetropolitan; in 1970 had much stronger commuting ties with Torrington city than with the central core of the potential Hartford-New Britain-Bristol Consolidated MSA; will probably remain nonmetropolitan.
Morris, CT	Now nonmetropolitan; had much stronger commuting ties with Litchfield town than with the central core of the Waterbury MSA; will probably remain nonmetropolitan.
Pembroke, NH	Now part of the Manchester, NH SMSA; had much stronger commuting ties with Concord city than with the Manchester central core; will probably become nonmetropolitan.
Portsmouth, RI	Now part of the Fall River, MA-RI, SMSA; had much stronger commuting ties with Newport city than with the central core of either the Fall River MSA or the Providence-Warwick-Pawtucket MSA; may become nonmetropolitan.
Raynham, MA	Now nonmetropolitan; had much stronger commuting ties with Taunton city than with the central core of the Boston Consolidated MSA; will probably remain nonmetropolitan.
Southbury, CT	Now part of the Waterbury SMSA; a review of 1970 commuting data shows that it had qualifying commuting ties only to the Waterbury central core.

CURRENT DEVELOPMENTS

OFSPS ISSUES WORKING PAPER 5

The Office of Federal Statistical Policy and Standards (OFSPS), Department of Commerce recently issued *Statistical Policy Working Paper 5: Report on Exact and Statistical Matching Techniques.*

This working paper was prepared by the Subcommittee on Matching Techniques, Federal Committee on Statistical Methodology. The Subcommittee was chaired by Daniel B. Radner, Office of Research and Statistics, Social Security Administration, Department of Health and Human Services. Members of the Subcommittee include Rich Allen, Economics, Statistics, and Cooperatives Service (USDA); Thomas B. Jabine, Energy Information Administration (DOE); and Hans J. Muller, Bureau of the Census (DOC). Maria E. Gonzalez (OFSPS), Chair of the Federal Committee on Statistical Methodology, was an *ex officio* member of the Subcommittee.

The Subcommittee report describes and contrasts exact and statistical matching techniques. Applications of both exact and statistical matches are discussed. The report is intended to be useful to statisticians in various Federal agencies in determining when it is appropriate to use exact matching techniques or when it may be appropriate to use statistical matching techniques. The recommendations of the report also include suggestions for further research.

Early this fall, *Statistical Reporter* will feature an article on this working paper. Copies of the *Report on Exact and Statistical Matching Techniques* are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, Stock Number 003-005-00186-7, Price $3.50. (MARIA E. GONZALEZ, OFFICE OF FEDERAL STATISTICAL POLICY AND STANDARDS, DEPARTMENT OF COMMERCE, telephone (202) 673-7953)

1978 COUNTY POPULATION ESTIMATES BY AGE AND SEX

The Census Bureau has prepared experimental population estimates by age and sex for all United States counties for each year, 1970 through 1978. The estimates, available on computer tape, were developed at the request of the National Cancer Institute, which provided major funding for the project.

The estimates are considered experimental because the Bureau has not yet systematically tested them against census data, as it customarily does with estimates from regular postcensal estimate programs. The Bureau did conduct tests with available special census data, however. *Current Population Reports*, Series P-23, No. 103, "Methodology for Experimental Estimates of the Population of Counties by Age and Sex: July 1, 1975," describes the results of these tests, the limitations of the estimates, and the methodology used. A comprehensive test of the age estimates against the 1980 census counts will be carried out.

The estimates can be provided on computer tape at a cost of $100. Data for general use are on a tape giving 5-year age groups to age 75 and over, by sex. However, the basic computations were done by race (White, Black and Other races). A computer tape with data cross-classified by race is also available, but the Bureau does not recommend it for general use because only very limited evaluation of the race detail has been possible.

Population estimates with age detail are an important prerequisite in local area planning for health, education, and other important programs. In recent years, changes for some age segments of the population have been dramatic because of wide swings in the birth rate during the past 40 years. For example, the 25 to 34 year old age group grew 39 percent nationally from 1970 to 1979, while the population 5 to 13 years old decreased by 16 percent. Because these changes affect all local areas in greater or lesser degree, it is essential that current age distributions for local areas be developed to the extent permitted by available technology. The experimental county age estimates that the Bureau has prepared are a move in this direction.

"Methodology for Experimental Estimates of the Population of Counties by Age and Sex: July 1, 1975," P-23, No. 103, GPO Catalog No. C3.186:P-23/103, is available for $2, from the Superintendent of Docu-

ments, U.S. Government Printing Office, Washington, D.C. 20402. To obtain the estimates, contact the Estimates Research Unit, Population Division, U.S. Bureau of the Census, Washington, D.C. 20233, telephone (301) 763-7883. (RICHARD IRWIN, BUREAU OF THE CENSUS, DEPARTMENT OF COMMERCE, telephone (301) 763-7883)

ENROLLMENTS AND PROGRAMS IN NONCOLLEGIATE POSTSECONDARY SCHOOLS, 1978

Until recently, the results of the latest National Center for Education Statistics survey of programs and enrollments in postsecondary schools have been distributed only on computer tape. A printed report, now available, contains information on the number of men and women being trained in various vocational fields at the postsecondary level, the number completing their programs or leaving with a marketable skill, as well as on the changes for and length of programs offered by public and private schools. Information on the type of staff employed and on correspondence schools is also provided. Many of the 26 tables offer comparative data for 1978, 1976 and 1974.

Some highlights of the report are:

- Between 1974 and 1978, both men and women made inroads into each other's "traditional" occupational training fields. An implication of the trends may be that barriers to entering sex-dominated programs are gradually lessening.
- The average charge in private schools for programs was nearly five times that in public schools. However, private school students can complete their programs in two-thirds of the time required in public schools, thus enabling them to enter the labor market earlier.

Information for this report was collected by NCES in its biennial survey of nearly 8,000 public and private noncollegiate postsecondary schools that offer vocational programs. The results of the universe study are used to develop the *Directory of Postsecondary Schools with Occupational Programs* and the supplement *Programs and Schools*. A 25-percent sample of the universe was requested to furnish additional information on completers and leavers, charges and length of program, and staff. Further information on the survey and the report may be obtained from the Project Officer, Evelyn R. Kay, telephone (301) 436-6791.

Copies of the report, entitled: *Enrollments and Programs in Noncollegiate Postsecondary Schools 1978* (NCES 79-331) may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, for $4.25 each. Data users interested in acquiring all of the data collected by the survey may still purchase the computer tape, identified as the *Postsecondary Vocational Survey 1978, All Forms*. Additional information about this tape can be obtained from the Data Systems Branch, NCES, (1001 Presidential Building), 400 Maryland Avenue, S.W., Washington, D.C. 20202, telephone (301) 436-7044. (O. JEAN BRANDES, NATIONAL CENTER FOR EDUCATION STATISTICS, DEPARTMENT OF EDUCATION, telephone (301) 436-7873)

COLLEGE FACULTY SALARY, TENURE, AND FRINGE BENEFITS

The National Center for Education Statistics (NCES) announces the release of a special report, *Women Outpace Men in Faculty and Tenure Increases Between 1976-77 and 1977-78*. The report is a recent analysis of survey data from the 1976-77 and 1977-78 academic years. The data cover salaries, tenure and fringe benefits of full-time instructional faculty in institutions of higher education. Among the highlights:

- During the period covered, the number of full-time women faculty increased 2.3 percent, while men registered no increase;
- Though men with tenure far outnumbered women, the rise in tenured women almost doubled that for men—3.4 percent for women compared to 1.8 percent for men;
- In 1977-78, at all institutional levels and all academic ranks, the mean salaries of men exceeded those of women;
- Women were less likely to be employed in universities than in 2-year and other 4-year institutions.

The 13-page report contains 8 tables and 5 charts covering the major subjects, with breakdowns by level and control of institution, sex and academic rank.

Further information on the report may be obtained from the author, Carolyn R. Smith, telephone (301) 436-6425. Single copies of the report entitled *Women Outpace Men in Faculty and Tenure Increases between 1976-77 and 1977-78* (NCES 80-B04), as well as information about related computer tapes, may be obtained from the Statistical Information Office, National Center for Education Statistics (1001 Presidential Building),

400 Maryland Avenue, S.W., Washington, D.C. 20202, telephone (301) 436-7900 and 436-7944. (O. JEAN BRANDES, NATIONAL CENTER FOR EDUCATION STATISTICS, DEPARTMENT OF EDUCATION, telephone (301) 436-7873)

TECHNICAL ASSISTANCE NEEDS IN EDUCATIONAL PROGRAM EVALUATION

The National Center for Education Statistics (NCES) has recently released a report on *ESEA Title I Evaluation: School District Needs for Technical Assistance, 1979.* The report was based on a Fast Response Survey conducted in anticipation of Federal requirements mandating district use of evaluation models in assessing and reporting student progress under ESEA Title I programs. The survey was designed to obtain the views of school districts concerning their needs for Title I evaluation technical assistance when specific evaluation models became mandatory, as well as their current needs and receipt of assistance.

The findings were used to facilitate the voluntary acceptance by the districts of the evaluation models developed by the then U.S. Office of Education, (now the Department of Education).

The survey results provided Federal evaluation program managers with specific information on the type and amount of technical assistance needed by the districts to comply with the anticipated requirements mandating use of evaluation models.

This report is the eighth in the NCES series of publications on policy-oriented data collected through its Fast Response Survey System (FRSS). To obtain a copy or information about the FRSS, write to Jeanette Goor, NCES (Presidential Building, Room 205), 400 Maryland Ave., S.W., Washington, D.C. 20202. (JEAN BRANDES, NATIONAL CENTER FOR EDUCATION STATISTICS, DEPARTMENT OF EDUCATION, telephone (301) 436-7873)

EDUCATION DIRECTORY, COLLEGES AND UNIVERSITIES, 1979-80

The 1979-80 edition of the *Education Directory, Colleges and Universities* published by the National Center for Education Statistics (NCES) is now available. Like its predecesors, this annual publication gives the location of each institution, the identification codes, telephone number, year established, student body size, undergraduate tuition, control or affiliation, calendar system, highest level of offering, type of program, specific accreditations, and the names of the chief administrative officers.

The Directory includes 3,190 institutions and branches, arranged alphabetically within each State. Tables in the Introduction summarize some of the characteristics of the institutions such as the turnover of administrative personnel from the previous year. Appendix A specifies changes in institutions from the 1978-79 edition. Also included as appendices are listings of Statewide agencies of postsecondary education, and of higher education associations. The names of all colleges and universities described in the Directory are listed alphabetically in the index.

Users of the publication rely on the Directory for a wide range of functions. For administrators of Federal programs, inclusion of an institution indicates eligibility for Federal funds, especially student aid. Immigration officials can readily verify whether foreign students are attending an eligible institution. Educational researchers rely on the definition of the higher education universe and are able to sample the universe based on the characteristics reported in the Directory.

The *Education Directory, Colleges and Universities, 1979-80* is available in printed form from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. It is also available on magnetic tape from the Data Systems Branch, National Center for Education Statistics, 400 Maryland Avenue, S.W., Washington, D.C. 20202, telephone (301) 436-7956. (JEAN BRANDES, NATIONAL CENTER FOR EDUCATION STATISTICS, DEPARTMENT OF EDUCATION, telephone (301) 436-7885)

NEW SSA CHARTBOOK ON INCOME OF THE AGED

The Social Security Administration (SSA) has compiled a chartbook illustrating the financial resources of this country's aged population. The chartbook, *Income and Resources of the Aged*, focuses on the U.S. population, aged 55 years and older in 1976, using data from the Census Bureaus' Current Population Survey.

SSA periodically studies the financial resources of the aged couples and non-married persons as a means of evaluating social security's impact on the economic well-being of older workers and retired people. The chartbook notes, for example, that social security benefits are the major source of income for two-thirds of social security beneficiaries age 65 and over.

The chartbook also notes that the median income of

couples aged 65 and over who had earnings was $10,730, compared with $6,570 for couples of the same age who did not have earnings. The median income of nonmarried persons with earnings was $5,450 compared with $3,130 for nonmarried persons without earnings. In 1976, the poverty levels for persons aged 65 and over were $3,445 for a couple and $2, 730 for the nonmarried. One-third of nonmarried persons aged 65 and over had incomes from all sources including social security benefits that were below the poverty line in 1976.

Single copies of *Income and Resources of the Aged* can be obtained free of charge from SSA's Office of Research and Statistics, Publications Staff, 1875 Connecticut Avenue, N.W., Washington, D.C. 20009. Multiple copies may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, for $2.75 each. The chartbook is based on a more detailed staff paper entitled *Income of the Population 55 and Over, 1976*, also available from the Office of Research and Statistics. (ROBERT E. ROBINSON, SOCIAL SECURITY ADMINISTRATION, DEPARTMENT OF HEALTH AND HUMAN SERVICES, telephone (202) 673-5576)

SSA REPORT ON PUBLIC ASSISTANCE RECIPIENTS

The Office of Research and Statistics in the Social Security Administration has published an 85-page statistical report, prepared by the Family Assistance Statistics Branch in the Division of Family Assistance Studies, entitled *Public Assistance Recipients and Cash Payments by State and County—February 1979.*

This publication consists of statistical tables presenting the number of recipients and amount of money and/or nonmedical payments under the aid to families with dependent children (AFDC) program and general assistance (GA) programs, by State and county, February 1979. State and County data are shown for number of families or cases, recipients, children, and payments under AFDC and GA. The report is designed to meet informational needs while maintaining the confidentiality of individual records.

The data have been published annually since 1964. The 1978 and 1979 data are on computer magnetic tapes and will be made available to persons in need of the information in a machine-readable format.

Single copies of *Public Assistance Recipients and Cash Payments by State and County—February 1979* (SSA Publication No. 13-11921) are available from the Publications Staff, Office of Research and Statistics, Social Security Administration, Department of Health and Human Services, Room 1120, Universal North Building, 1875 Connecticut Avenue N.W., Washington, D.C., 20009 telephone (202) 673-5580. This publication may also be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 for $3.75 a copy. (ROBERT E. ROBINSON, SOCIAL SECURITY ADMINISTRATION, DEPARTMENT OF HEALTH AND HUMAN SERVICES, telephone (202) 673-5576)

RECENT SOCIAL SECURITY BULLETIN REPORTS

The Office of Research and Statistics of the Social Security Administration has recently issued the following *Social Security Bulletin* reports which are briefly described below.

Reports of the 1979 Advisory Council on Social Security (Social Security Bulletin, February 1980).—This article reviews the major conclusions by the 1979 Advisory Council on Social Security. After 17 meetings and 6 days of public hearings, the conferences recommended a change in Medicare financing from payroll to income taxes, modification of the benefit formula to ensure that workers with a long history of low wages receive retirement incomes high enough to keep them out of poverty and that high-wage workers be assured a more generous return on their contributions, and a change in the treatment of women to account for their increasing labor-force participation and a rise in the divorce rate.

Demographic Factors in the Disability Determination Process: A Logistic Approach (Social Security Bulletin, March 1980).—Identifying the demographic factors that affect the likelihood of being allowed disability insurance benefits under the social security program is important in assessing the operation of that program and has been the focus of continuing research. Previous studies in this area, which have been limited to cross-tabular analyses of aggregated data and the examination of a few variables at a time, have uncovered apparently sizable differences in the probability of allowance by age, sex, race, and other demographic characteristics. This article uses a much more rigorous statistical technique—a logit maximum likelihood procedure—to examine the same question. That technique permits exploration of the relationship between a particular characteristic and the probability of allowance while controlling for the effect of other characteristics considered in the analysis. The findings show that cardiovascular primary

diagnoses had a higher probability of allowance than did almost all other primary diagnoses. Mobility restrictions, older age at the onset of disability, and residence in States with temporary disability programs also were associated with a higher probability of allowance. Applicants who were black or from the South were found to have a lower probability of allowance. In general, those results applied to both men and women.

SSI Payments to Lawfully Resident Aliens, 1978-79 (Social Security Bulletin, March 1980).—This article analyzes the extent to which aliens are represented among persons initially awarded SSI benefits. Aliens and citizens are compared in terms of age, sex, incidence of earned and unearned income, living arrangements, amount of monthly SSI payment, and State of residence. The article also presents data on length of residence in the United States, country of birth, and basis of administration.

Labor-Force Participation Patterns of Older Self-Employed Workers (Social Security Bulletin, April 1980).—This article reports that self-employed persons work in a less constrained environment than do most wage-and-salary employees. Generally they are not subject to compulsory retirement nor are they affected by institutional rules concerning labor supply. Data from the 1969 and 1971 interviews of the Retirement History Study show that the labor supply and retirement patterns of the self-employed are distinct from those of other workers. The self-employed (especially "career" self-employed) nearing retirement age are less likely to be out of the labor force, and those who continue in the labor force have a wider variation in the number of hours worked per year.

Allocation of Time and Resources by Married Couples Approaching Retirement (Social Security Bulletin, April 1980).—The work and retirement decisions of husbands and wives are likely to be made jointly as they allocate their available resources. This article models the allocation of family wealth and family members' time over the lifetime of the unit. The first section reports simulation results that illustrate the relationship between the value of members' time in both market work and the production of home services. The model is then tested by means of the Retirement History Study for 1969-73. The estimation is conducted by employing a simultaneous logit model of labor-force participation by the husband and wife. Principal findings are: (1) Individuals respond positively to increases in their own wage rate but tend to reduce labor-force participation as the wage rate of their spouse increases. (2) the health of the husband is an important determinant of his labor-force participation, and (3) the probability that a person will be in the labor force is raised if the spouse is employed.

Reprints of the above materials are available from the Publications Staff, Office of Research and Statistics, Social Security Administration, 1875 Connecticut Avenue, N.W., Washington, D.C. 20009, telephone (202) 673-5209. The Social Security Bulletin is available by subscription, for $14 a year through the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. (ROBERT E. ROBINSON, SOCIAL SECURITY ADMINISTRATION, DEPARTMENT OF HEALTH AND HUMAN SERVICES, telephone (202) 673-5576)

FRB STUDY OF FOREIGN OWNERSHIP OF U.S. BANKS

Foreign ownership of U.S. banks has increased significantly in recent years, and as a result has become the focus of regulatory and congressional interest. That interest was greatly sharpened by the requests of the Hong Kong and Shanghai Banking Corporation and other foreign banking organizations to buy large U.S. banks. With the consummation of these acquisitions, foreign ownership of U.S. banks has taken on entirely new dimensions. The assets of U.S. banks controlled by foreign parties almost doubled between year-end 1978 and year-end 1979, and account for 4 percent of the assets of this country's domestic banking system (excluding the assets of U.S. branches and agencies of foreign banks). Consequently, it is important to assess the impact of foreign ownership on the performance of these banks.

In early 1980, the Federal Reserve Board prepared a report entitled *Foreign Ownership and the Performance of U.S. Banks*, which was distributed to congressional committees in connection with legislation regarding foreign ownership of U.S. banks. This study examines the growth and operations both of existing U.S. banks acquired by foreign parties, and of U.S. banks that were established by foreign banks. Because foreign ownership is a more important issue with respect to acquisitions, the thrust of the paper is in that direction. The first part of the study provides a background by identifying the major concerns about foreign ownership and by placing the movement in perspective in the domestic banking industry. The second part presents the results of an empirical study comparing foreign-owned U.S. banks with then U.S.-owned peers, as defined by size and location. The study first compares the balance-sheet structure and

profitability of the two groups for the period preceding foreign ownership and again at year-end 1978. It then examines changes in the operations of the two groups during the period of foreign ownership.

Several operational characteristics are examined, including the banks' growth in assets, loans, and deposits; their lending and funding practices; their investment policies; and their profitability. Differences found between the foreign-owned banks and their peers generally reflected a continuation of pre-existing differences. The only statistically significant difference between the two groups of banks during the period of foreign ownership appeared with respect to the investment policies of the banks.

While the study included virtually all foreign-owned U.S. banks with a performance record under the new owners, its findings should be regarded as tentative, given the necessarily small number of banks analyzed and their relatively short experience under foreign ownership. At the same time, the findings provide important insights into the experience to date and give no indication that the foreign-owned U.S. banks or their communities have suffered from the change in ownership.

Copies of *Foreign Ownership and the Performance of U.S. Banks* may be obtained from Publications Services, Board of Governors of the Federal Reserve System, Washington, D.C. 20551. (HELEN L. HULEN, PUBLICATIONS SERVICES, FEDERAL RESERVE BOARD, telephone (202) 452-3244)

DOE ENDS DEPENDENCE ON DATA FROM OIL TRADE ASSOCIATION

The Department of Energy no longer relies on the oil industry's trade association, the American Petroleum Institute (API), for information about petroleum, production, imports, and stocks. All the numbers in the Energy Information's (EIA) *Weekly Petroleum Status Report* are now based on reports collected by EIA from individual oil companies. These reports are routinely spot checked by EIA in the field.

EIA also has developed a system for reporting the size of oil and natural gas reserves in the United States. In the past, EIA had to rely on API and the American Gas Association for the reserve statistics. The petroleum institute will stop reporting reserve estimates once their 1979 calculations are finished due to the availability of EIA reserves figures. (JOHN E. DANIELS, ENERGY INFORMATION ADMINISTRATION, DEPARTMENT OF ENERGY, telephone (202) 634-5602)

RECENT ENERGY REPORTS

The Energy Information Administration, U.S. Department of Energy has recently announced the following new publications which are briefly described. Copies are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. When ordering please use the stock number and price which are included with the description.

A Comparison of Energy Expenditures by Elderly and Non-Elderly Households 1975 and 1985 (DOE/EIA/AR-0220; GPO Stock Number 061-003-00117-3; $4.00).—This report relates direct energy expenditures by elderly and non-elderly households in 1975 and 1985.

Coal Sales Companies in the United States (1979) (DOE/EIA-0217(79); GPO Stock Number 061-003-00112-2; $3.25).—This annual report lists coal sales companies in the United States that submitted coal distribution data to the Energy Information Administration on EIA forms 6 and 196B.

Gas Supplies of Interstate Natural Gas Pipeline Companies (1978) (DOE/EIA-0167(78); GPO Stock Number 061-003-00114-9; $5.50).—This report contains details statistics on reserves, production, revisions, and additions to reserves, imports and exports, and deliverability of natural gas by interstate pipeline companies.

Inventory of Powerplants in the United States (December 1979) (DOE/EIA-0095(79); GPO Stock Number 061-003-00113-1; $9.50).—This annual publication lists by State existing and projected powerplants within electric utility systems.

U.S. Imports and Exports of Natural Gas (1979) (DOE/EIA-0188(79); GPO Stock Number 061-003-00118-1; $1.50).—This document presents U.S. pipeline imports and exports of natural gas and of liquefied natural gas.

Recent Products of Applied Analysis (February—April 1980) (DOE/EIA-0203/3; GPO Subscription—Domestic $8.00 a year, Foreign $10.00 a year; Single copy—Domestic $1.00; Foreign $1.25).—This is issue number three of this publication which contains titles, abstracts, and ordering information for reports released by the Office of Applied Analysis from February through April 1980.

Annual Report to Congress, 1979, Volume Two (DOE/EIA-0173(79)/2; GPO Stock Number 061-003-00107-6; $7.00). This volume presents a statistical overview of U.S. energy supply, demand and price trends over the past 30 years. Volume Three will be available by the first of August.

A Comparative Assessment of Five Long-Run Energy Projections (DOE/EIA-0016; GPO Stock Number 061-003-00106-8; $4.50).—This is a one-time publication which compares five major forecasts prepared under similar assumptions using five models.

Cost and Indexes For Domestic Oilfield Equipment and Production Operations (1979) (DOE/EIA-0185(79); GPO Stock Number 061-003-00108-4; $3.75).—This report presents oilfield equipment and/or operating costs on a hypothetical lease basis for selected depths in seven producing areas in the United States.

Documentation of Volume Three of the 1978 Energy Information Administration Annual Report to Congress (DOE/EIA/CR-0456).—This publication documents the analytical process used by the EIA to develop the economic and energy forecasts published in Volume Three of the *1978 EIA Annual Report to Congress*. This publication is available through the National Energy Information Center at 1726 M Street, N.W. Washington, D.C. 20461. (JOHN E. DANIELS, OFFICE OF ENERGY INFORMATION SERVICES, ENERGY INFORMATION ADMINISTRATION, DEPARTMENT OF ENERGY, telephone (202) 634-5602)

SEMINAR ON ENERGY INFORMATION PRODUCTS

The Office of Energy Information Services of the Energy Information Administration, U.S. Department of Energy has recently announced a course on Energy Information Products. The 1-day seminar takes an in-depth look at the most requested publications as well as highlights EIA publications in general by subject category. EIA's new Federal Energy Data Index, a computerized data base used to provide quick reference to statistical tabulations of all EIA publications, is also presented. Energy information users interested in learning more about government energy publications and services, how to use them, and references to other energy sources would profit by this new service. Scheduling for the seminar is now being developed. For more information call Tom McCarley at the Energy Information Administration, telephone (202) 634-5685.

RECENT NSF REPORTS

The Division of Science Resources Studies, National Science Foundation recently released the following reports, which are briefly described:

Reviews of Data on Science Resources, No. 36, "Employment Characteristics of Recent Science and Engineering Graduates: The Effects of Work Experience, Advanced Degrees, and Business Cycles" (NSF 80-311) is the second report in a series on recent entrants into science and engineering (S/E) careers. It examines aspects of postgraduate and labor market behavior over time using information collected in 1974, 1976, and 1978 for the cohorts graduating in 1972, 1974, and 1976. It concentrates on two issues: (1) the acquisition of skill over time and its consequences for labor market performance and (2) the effects of changes in the economic environment on labor market performance.

The first section of the report addresses skill acquisition and its consequences by examining the experience of the 1972 cohort of S/E bachelor's-degree recipients measured 6 years after graduation (i.e., in 1978). The likelihood of acquiring advanced degrees and the effects of such education on unemployment, employment in S/E jobs, and earnings are examined. The second section addresses changes in general economic conditions and their consequences for (1) graduate school enrollment; (2) labor force participation (i.e., working or looking for a job); (3) unemployment; and (4) work in S/E jobs.

Copies of the report (NSF 80-311) are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 for $1.50 per copy, Stock Number 038-000-00444-1.

Also issued is *Employment of Scientists, Engineers, and Technicians in Manufacturing Industries, 1977* (Detailed Statistical Tables) (NSF 80-306). Copies of these tables (NSF 80-306) are available from the Division of Science Resources Studies, National Science Foundation, 1800 G Street, N.W., Washington, D.C. 20550. (CHARLES E. FALK, DIVISION OF SCIENCE RESOURCES STUDIES, NATIONAL SCIENCE FOUNDATION, telephone (202) 634-4622)

APDU ANNUAL MEETING ANNOUNCEMENT

The Association of Public Data Users (APDU) will hold its 1980 Annual Conference at the Capital Hilton in Washington on October 6 and 7. APDU is a consortium of business organizations, universities, research groups, Federal agencies, libraries, and

others with a major interest in public machine-readable statistical products. The theme for this years' conference is 1980: Year of the Census.

The entire program for Tuesday, October 7 will be devoted to presentations, discussions, and workshops concerning the 1980 census. Vincent Barabba, Director of the Bureau of the Census, will address the Tuesday luncheon meeting.

On Monday, October 6, non-census public data will be the topic. Presentations will be made concerning dissemination policy for public data, general data overviews from various Federal agencies, and information regarding specific data such as the Current Population Survey and the Survey of Income and Program Participation.

For more information, please contact Barbara Aldrich, APDU Annual Conference Program Chair, Data User Services Division, Bureau of the Census, Washington, D.C. 20233, telephone (301) 449-1667).

AMERICAN DEMOGRAPHICS MAGAZINE PRIZE FOR APPLIED DEMOGRAPHIC RESEARCH

To encourage the application of demography to business and government, *American Demographics* magazine is awarding an annual prize for the best paper that reports research on this topic.

A $1,000 prize will go to the author, or authors, of the winning paper. The research must be original and the paper previously unpublished. It will appear as an article in *American Demographics*. Runners up will also be published and their authors will receive a $100 honorarium.

The research should have broad application, not limited to an individual firm, locality, or government department, although it can have been undertaken for a specific corporate, university, foundation, or government purpose.

Examples of the kinds of research covered by this prize are: how particular demographic trends affect a sector of the economy, an economic activity, a public service; how demographic analysis improves private or public decisionmaking; how demographic data are used successfully to help people reach business or government objectives.

Papers may explore how demographic trends and characteristics affect consumer attitudes and behavior, voting patterns, occupational choice, views toward retirement, use of leisure, and other individual decisions.

Papers should be written for a lay professional audience, and are subject to editing. Papers should not report lengthy statistical tables, complex methodologies or mathematical models. However, supporting research, tables, and references should accompany the entry, or be available upon request.

The deadline for submission is November 1, 1980 and all entrants will be notified by the end of the year. The winning paper and other successful entries will be published during the following year.

Entries, in four copies, should be sent to: Demographic Research Prize, American Demographics, Box 68, Ithaca, N.Y. 14850. (BRYANT ROBEY, EDITOR, AMERICAN DEMOGRAPHICS, telephone (607) 273-6343)

URBAN DATA MANAGEMENT SYMPOSIUM—CALL FOR PAPERS

The Eighth European Symposium on Urban Data Management (UDMS) will be held in Oslo, Norway, June 3-6, 1981. To obtain the maximum international coverage of developments and experience within the field of interest, a call for papers has been issued by the International Program Committee for the eighth symposium. The members of the committee include: M. J. M. Bogaerts (Netherlands), H. Hansen (Germany), J. P. Nolan (France), K. Jones (Norway), and T. Waugh (United Kingdom).

Field of interest. Since the first European Symposium in 1971 the concept of urban data management has evolved and grown. Although no precise definition has been attempted, there is a fairly general agreement that it covers urban and regional information systems which serve governmental planning and management. The information systems include both function-oriented systems which local authorities operate to meet their information needs, and supply-oriented information systems which national or local authorities operate, such as statistical or mapping services.

The information systems have functional, technical and organizational/administrative aspects, which are growing increasingly complex. An important dimension also is the information object in the information systems, for example: land, buildings and distribution networks; physical or legal persons; plans, decisions or opinions; accounts, activities or events.

General theme. The symposium in 1981 will mark the tenth anniversary of the first European Symposium.

As a result the general theme chosen for the 8th symposium is TEN YEARS ON! Preference will therefore be given to papers which either:

1. review development during the last 10 years, and explain the relationship between goals and achievements, and/or
2. indicate likely future trends, within the field in the light of cost-benefit considerations.

Special Topics. Within the framework of the field of interest and general theme of the symposium, a number of topics of special concern have been selected. Other topics will be included, however, if the quality of a paper justifies it. The special topics are:

1. Political constraints on the development and introduction of automated information systems at the urban and regional level, for example, issues of personal integrity and confidentiality, employment considerations, economic factors.
2. The impact of the change from manual to automated information systems, for example, organizational consequences, effect on working environment, need for education or retraining, user participation in system-design.
3. A computer in every department? The advantages and disadvantages of distributed data processing with mini- and microcomputers, such as user-friendliness and participation, problems of standards and integration, short-term versus long-term costs and benefits.
4. Experiences with new methods and tools, for example within geoprocessing, computer graphics, statistical indicators, data base management. Experiences with new types of systems, for example for environmental control, registration of distribution networks.
5. The advantages and disadvantages of using public registers and administrative files as sources for statistics as opposed to making censuses and surveys, for example, data quality, technical problems, costs.
6. Information systems for planning: visions 10 years ago and their use today and in the future; their role under different types of planning traditions (e.g. tional, incremental, advocate planning); their use in monitoring and revising plans; examples of systems for environmental, social and economic planning.
7. The system-user interface: how can the use of information systems be fitted into university and high school education programs; can user education affect the demand for information systems; is computer graphics the bridge between the user and the information system?
8. Soft information: How does one handle information on political priorities and values: examples of the use of soft information, for example, in connection with urban renewal.

Papers and Panels. The program will contain papers and panel discussions in plenary and group sessions. Each author of a paper will be allocated 40 minutes for presentation of the paper and will participate in the panel discussion at the conclusion of the session.8

Authors wishing to present papers related to the general theme and selected topics are invited to submit an abstract or detailed outline of the proposed paper in English or French before October 15, 1980 to: K. Jones, UDMS-81.8

Pepers will be chosen by the International Program Committee. Authors will be notified in late October 1980. Presented papers will be published in the symposium's proceedings.

1980 INDEX, JANUARY TO JUNE

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PERSONNEL NOTES

DEPARTMENT OF COMMERCE

Bureau of the Census: PAUL BIEMER, formerly mathematical statistician in the Research Center for Measurement Methods Division, has been promoted to Chief, Response Variance Studies Branch in the Statistical Methods Division. JAMES L. DINWIDDIE, formerly mathematical statistician in the Survey Design Branch, Statistical Methods Division, has been promoted to Chief, Census Surveys Branch in that Division.

DEPARTMENT OF ENERGY

Energy Information Administration: ALBERT H. LINDEN, JR. has been appointed Acting Administrator of the Energy Information Administration. Mr. Linden succeeds Dr. LINCOLN E. MOSES who resigned to return to Stanford University. LILLIAN D. REGELSON, formerly Assistant Administrator for Energy Systems and Support, has been appointed to the position of Assistant Administrator for Applied Analysis to succeed C. ROGER GLASSEY. Dr. Glassey resigned to return to the University of California at Berkeley.

DEPARTMENT OF THE TREASURY

Internal Revenue Service: FRITZ SCHEUREN, has been appointed Director of the Statistics Division. Formerly he was Acting Chief Mathematical Statistician and chief of statistical analysis and survey implementation in the Office of Research and Statistics, Social Security Administration.

BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

Division of Research and Statistics: GARY P. GILLUM, formerly from the Federal Reserve Bank of New York, has joined the Board's staff as an Economist in the Banking Section.

SCHEDULE OF RELEASE DATES FOR PRINCIPAL FEDERAL ECONOMIC INDICATORS

September 1980

Release dates scheduled by agencies responsible for the principal economic indicators of the Federal Government are given below. *These are target dates* that will be met in the majority of cases. *Occasionally agencies may be able to release data a day or so earlier or may be forced by unavoidable compiliation problems to release a report one or more days later.* In certain cases,* timing variability in the receipt of raw data requires a range of dates rather than a specific release date.

A similar schedule will be shown here each month. The indicators are identified by the title of the releases in which they are included; the source agency; and the release identification number where applicable. Release date information for additional series can be found in publications of the sponsoring agencies.

(Any inquiries about these series should be directed to the issuing agency.)

Date		*Subject*	*Data for*
September	2	Construction Expenditures (Press release), Census, C-30	July
	2	Selected Interest Rates, Federal Reserve Board (FRB), G.13	August
	2	Flow of Funds Accounts, FRB, Z.1	2Q'80
	2	Manufacturers' Shipments, Inventories, and Orders, Census, M3-1	July
	5	The Employment Situation (Press release), Bureau of Labor Statistics (BLS)	August
	5	Producer Price Indexes (Press release), BLS	August
	5	Factors Affecting Bank Reserves and Condition Statement of Federal Reserve Banks, FRB, H.4.1	Week Ending September 3
	5	Weekly Consolidated Condition Report of Large Commercial Banks and Domestic Subsidiaries, FRB, H.4.2	Week Ending August 27
	5	Money Stock Measures, FRB, H.6	Week Ending August 27
	*5-8	Consumer Installment Credit, FRB, G.19	July
	8	Monthly Wholesale Trade (Press release), Census, BW	July
	8	Manufacturers' Export Sales and Orders, Census, M4-A	July

Date		Subject	Data for
September	9	Quarterly Financial Report for Manufacturing Corporations, Federal Trade Commission	2Q'80
	9	Monthly Selected Services Receipts (Press release), Census	July
	9	Sales, Inventories of Single-Family Homes, Census, C-25	July
	10	Plant and Equipment Expenditures, Bureau of Economic Analysis (BEA)	2Q'80
	10	Advance Monthly Retail Sales (Press release), Census (54)	August
	11	Crop Production, Agriculture	September 1
	11	Manufacturing and Trade Inventories and Sales, Census	July
	12	Supply/Demand Estimates, Agriculture	Current Marketing Season
	12	Factors Affecting Bank Reserves and Condition Statement of Federal Reserve Banks, FRB, H.4.1	Week Ending September 10
	12	Weekly Consolidated Condition Report of Large Commercial Banks and Domestic Subsidiaries, FRB, H.4.2	Week Ending September 3
	12	Money Stock Measures, FRB, H.6	Week Ending September 3
	*15-17	Industrial Production, FRB, G.12.3	August
	17	Yields on FHA Insured New Home 30-year Mortgages, HUD	September 1
	17	Housing Starts (Press release), Census, C-20	August
	*16-18	Capacity Utilization: Manufacturing and Materials, FRB, G.3	August
	18	Personal Income and Outlays, BEA	August
	18	Summary of U.S. International Transactions, BEA	2Q'80
	19	Gross National Product (Second Revision), BEA	2Q'80
	19	Corporate Profits (Revised), BEA	2Q'80
	19	Manufacturing Capacity Utilization, BEA	June
	19	Factors Affecting Bank Reserves and Condition Statement of Federal Reserve Banks, FRB, H.4.1	Week Ending September 17
	19	Weekly Consolidated Condition Report of Large Commercial Banks and Domestic Subsidiaries, FRB, H.4.2	Week Ending September 10
	19	Money Stock Measures, FRB, H.6	Week Ending September 10
	22	Hogs and Pigs, Agriculture	September 1
	23	Consumer Price Index (Press release), BLS	August
	23	Real Earnings (Press release), BLS	August
	23	Advance Report on Durable Goods, Manufacturers' Shipments and Orders (Press release), Census, M3-1	August
	24	Treasury Statement (the monthly "budget"), Treasury	August

Date		Subject	Data for
September	26	Export and Import Merchandise Trade, Census, FT-900	August
	26	Factors Affecting Bank Reserves and Condition Statement of Federal Reserve Banks, FRB, H.4.1	Week Ending September 24
	26	Weekly Consolidated Condition Report of Large Commercial Banks and Domestic Subsidiaries, FRB, H.4.2	Week Ending September 17
	26	Money Stock Measures, FRB, H.6	Week Ending September 17
	29	Work Stoppages (Press release), BLS	August
	30	Composite Indexes of Leading, Coincident and Lagging Indicators (Press release), BEA	August
	30	Agricultural Prices, Agriculture	Mid-September
	30	Labor Turnover in Manufacturing (Press release), BLS	August

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